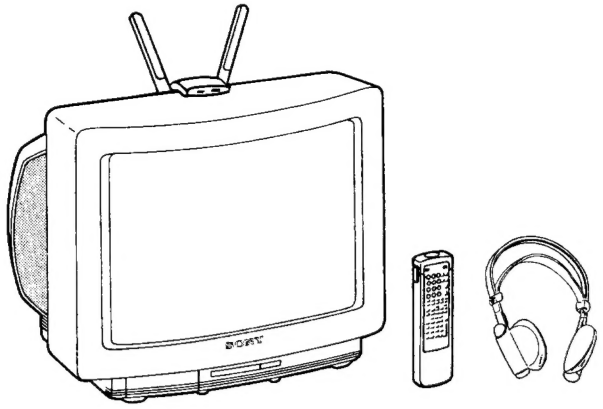
KV-H2513E
MDR-IF310/RM-816

SERVICE MANUAL

Spanish Model
Chassis No. SCC-F12B-A



AE-1C CHASSIS

MODELS OF THE SAME SERIES	
KV-H2513E	KV-H2511D
KV-H2511A	KV-H2512U
KV-H2510B	

SPECIFICATIONS

【KV-H2513E】

Television system	B/G/H
Color system	PAL, SECAM, NTSC3.58, NTSC4.43
Stereo system	GERMAN, NICAM stereo
Channel coverage	B/G/H VHF: E2-E12 UHF: E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10
Picture tube	Hi-Black Trinitron tube Approx. 63.5 cm (25 inches) (Approx. 59 cm picture measured diagonally) 110 ° -degree deflection
Inputs	1 21-pin connector: CENELEC standard including RGB input. 2 21-pin connector: including S video input Flont : 3 Audio and video input jacks: phono jack. Including S Video input Y: 1Vp-p±3dB 75ohm C: 0.3Vp-p±3dB 75ohm
Outputs	21-pin connector: CENELEC standard Headphones jack: stereo minijack External speaker terminals: 2-pin DIN Audio output jacks: phono jack (output dependent upon TV settings)
Sound output	30 W + 30 W
Power consumption	104 Wh
Dimensions incl.speakers	Approx. 575×510×487 mm (w/h/d)
Weight incl.speakers	Approx. 36kg
Supplied accessories	MDR-IF310 Headphones, IEC designation R6 batteries.

-Continued on next page-

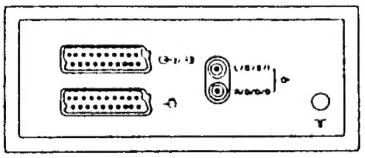
MICROFILM

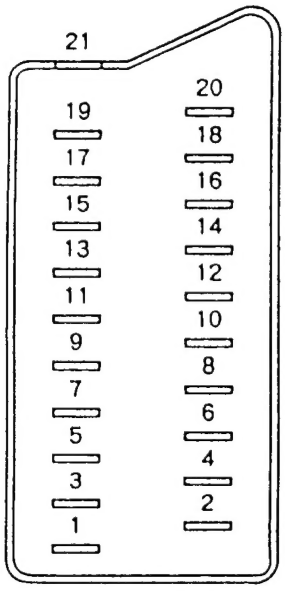
TRINITRON® COLOR TV
SONY®

【RM-816】

Remote control system	infrared control
Power requirements	3V dc 2 batteries IEC designation R6 (size AA)
Dimentions	Approx.75×221×23mm (w/h/d)
Weight	Approx.230g (including Batteries)

Design and specifications are subject to change without notice.





Pin No.	1	2	Signal	Signal level
1	○	○	Audio output B (right)	Standard level: 0.5Vrms Output impedance: Less than 1kohm*
2	○	○	Audio input B (right)	Standard level: 0.5Vrms Input impedance: More than 10kohms*
3	○	○	Audio output A (left)	Standard level: 0.5Vrms Output impedance: Less than 1kohm*
4	○	○	Ground (audio)	
5	○	○	Ground (blue)	
6	○	○	Audio input A (left)	Standard level: 0.5Vrms Input impedance: More than 10kohms*
7	○	●	Blue input	0.7V ± 3dB, 75ohms, positive
8	○	○	Function select (AV control)	High state (9.5 – 12V): Part mode Low state (0 – 2V): TV mode Input impedance: More than 10kohms Input capacitance: Less than 2 nF
9	○	○	Ground (green)	
10	○	○	Open	
11	○	●	Green	Green signal: 0.7V ± 3dB, 75ohms, positive
12	○	○	Open	
13	○	○	Ground (red)	
14	○	○	Ground (branking)	
15	○	–	Red input	0.7V ± 3dB, 75ohms, positive
	–	○	(S signal) croma input	0.3V ± 3dB, 75ohms, positive
16	○	●	Blanking input (Ys signal)	High state (1 – 3V) Low state (0 – 0.4V) Input impedance: 75ohms
17	○	○	Ground (video output)	
18	○	○	Ground (video input)	
19	○	○	Video output	1V ± 3dB, 75ohms, positive Sync: 0.3V (– 3, +10dB)
20	○	–	Video input	1V ± 3dB, 75ohms, positive Sync: 0.3V (– 3, +10dB)
	–	○	Video input/Y (S signal)	1V ± 3dB, 75ohms, positive Sync: 0.3V (– 3, +10dB)
21	○	○	Common ground (plug, shield)	

○ connected ● unconnected (open) * at 20Hz – 20kHz

4 Pin Connector (S-4)

Pin No	Signal	Signal level
1	Ground	
2	Ground	
3	Y (S signal) input	1V ± 3dB 75ohm, positive Sync $0.3V^{3}_{+10}$dB
4	C (S signal) input	0.3V ± 3dB 75ohm, positive

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

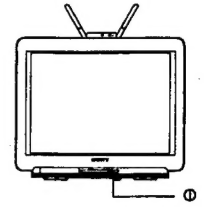
CAUTION

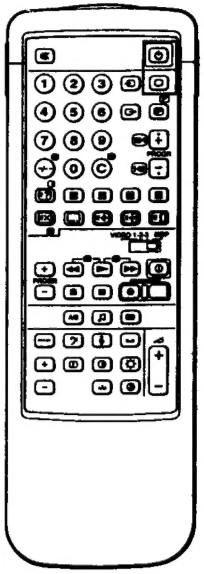
SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

SECTION 1
GENERAL

1-1. SWITCHING ON/OFF

After you have completed the basic preparation your TV is ready to be connected to the mains power supply (220/240V AC, 50Hz).



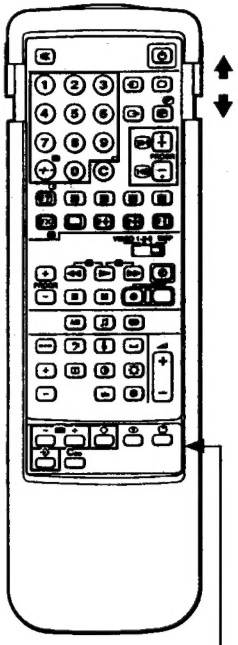


How to turn the TV on

Action	Result
Press ⏻ on the TV.	The TV will turn on. **Note:** If the screen remains blank, the TV may be in the standby mode. Press ⎔ or any number button on the commander to switch it on.

How to turn the TV off

A Temporarily	
Press ⏻ to enter standby mode.	The TV will be in standby. To return to the TV mode press ⎔.
B Completely	
Press ⏻ on the TV.	The TV will turn off.



Note: These buttons should be used in preset mode only.

1-2. PRESETTING

After you have installed the TV, you need to preset TV channels.

TV stations broadcast their channels at certain frequencies. You must preset these channels to programme numbers on the TV before you can watch the TV programmes.

There are 60 spaces for storing these channels.

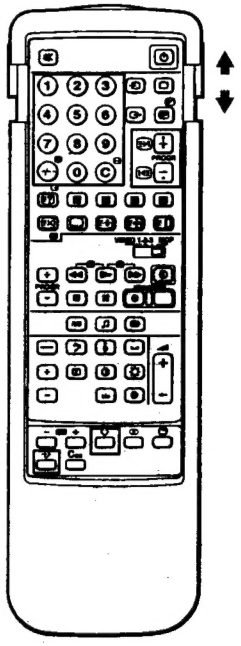
Slide open the full function side of the remote commander to reveal preset buttons.

How to preset channels automatically

If you are unfamiliar with the channel numbers of the stations you wish to preset, use "How to preset channels automatically". If you are familiar with the channel numbers refer to "How to preset T.V. channels directly".

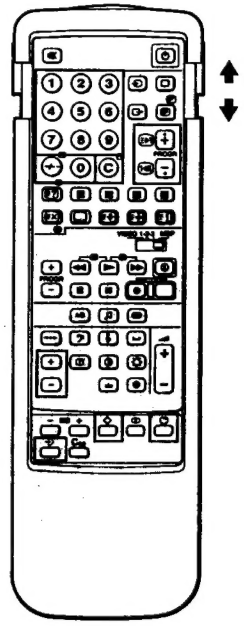
Action	Result
1 Press ⇨ to enter the preset mode.	The programme number will start flashing.
2 Press PROGR + or – or the number buttons to select the programme number to which you want to preset a channel. **Note** To select a double-digit number, use the -/-- button. For example, if you want to choose 23, press -/--, 2, and then 3.	The programme number changes.
3 Press ⏭ + or – once to search forward or backward for channels.	When a channel is tuned in and displayed, the search will stop. **Note** If you want to skip a channel, press ⏭ + or ⏭ –.
4 Press ◇ if you want to store the channel which is tuned in. Press ⇨ to exit preset mode without storing.	The channel is now stored and you have returned to TV mode.
5 Repeat steps 1 to 4 to store the other channels.	

Note
By recording the channel numbers displayed after step 3, the direct channel tuning method (page 6) may be used to re-order the programme number sequence to suit your convenience.



How to preset channels directly

Action	Result
1 Press ⇢ to enter the preset mode.	The programme number will start flashing.
2 Press PROGR +/– or the number buttons to select the programme number on which you want to preset a channel. **Note** To select a double-digit number, use the -/-- button. For example, if you want to choose 23, press -/--, 2, and then 3.	The programme number changes.
3 Press C.	The indication "C--" starts flashing on the display.
4 Select the channel number with two digits (e.g. 04) by pressing the number buttons. **Note** Press the second number within 5 seconds after the first one, otherwise the operation will be cancelled.	The channel number changes. **Note** If you have made a mistake the letter "X" will appear. Repeat step 4 again.
5 Press ◇ to store the channel which is tuned in. Press ⇢ to exit the preset mode without storing.	The channel is now stored and you have returned to TV mode.
Repeat steps 1 to 5 to store the other channels.	



How to Name a Station

You can use up to five characters to "name" a channel or station (i.e. BBC1).

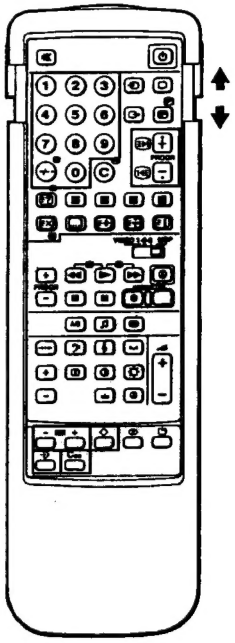
Action	Result
1 Select a programme number you want to name by pressing the PROGR +/– or the number buttons.	The selected programme number will appear.
2 Press ⇢.	The programme number starts flashing.
3 Press C.	The first column of the station name indication will start flashing.
4 Press + or – to select a letter in the alphabet, a number, or a blank space.	The letters of the alphabet, numbers and the space ("–") will appear sequentially.
5 Press C.	The first character is now set and the second column will start flashing.
6 Repeat steps 4 and 5 to set each letter.	
7 Press ◇.	The channel name is now stored and you have returned to TV mode.

How to tune in a channel temporarily

You can tune a channel in temporarily, if it has not been preset.

Action	Result
1 Press C.	The indication "C" appears on the screen.
2 Select the channel number with two digits by pressing the number buttons (e.g. for channel 4, first press 0, then 4.)	The channel is received, but it is not stored to any programme number.

1-3. BASIC TV OPERATION



How to Skip Programmes

Using the PROGR +/– buttons you can skip unused programme channel numbers. However, the skipped numbers may still be called up using the number buttons.

Action	Result
1 Press ⇳ to enter the preset mode.	The programme number will start flashing.
2 Select the programme number that you want to skip by pressing PROGR +/– or the number buttons.	The programme number changes.
3 Press C₀₀.	The lowest channel number appears under the programme number.
4 Press ◇.	The channel is now stored and you have returned to TV mode.
Repeat steps 1 to 4 to skip other programme numbers.	

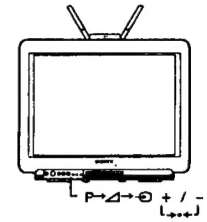
How to Fine Tune Manually

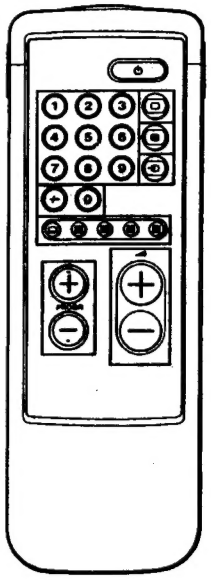
If the picture is distorted, you can fine tune the channel manually.

Action	Result
Press ⊞⊞ + or – repeatedly until the picture looks normal.	The indication ← F → appears on the screen.
Press ⇳ to enter the preset mode.	The programme number starts flashing.
Press ◇.	The fine tuning is stored.

Note: Normal tuning can be restored if you preset the channel once more.

Note: Press ⊥ on door to open.





This section introduces you to the basic control functions which are available on the simple side of the remote commander.

How to Select Programmes

Before you can select programmes make sure that you have preset channels, refer to page 5.

Action	Result
Press PROGR +/– or the number buttons. To select a double-digit number, use the -/-- button. For example, if you want to choose 23, press -/--, 2, and then 3.	The selected programme is displayed.

How to Adjust the Volume

Action	Result
Press ◿ + or –.	The volume markers will appear and are adjusted accordingly.

Basic teletext operation

Select
- The ▣ button to view the teletext.
- The ▢ button to request subtitles (P.888).
- One of the coloured buttons for fastext operation.
- The ▢ button to return to TV mode.

For details about teletext operation, refer to page 14.

How to operate with the buttons on the TV

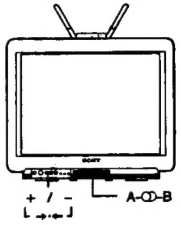
You can also select programmes and adjust the volume using the P→◿→⊖ and →•← +/– buttons on the front of the TV.
For operation, first press the P→◿→⊖ button repeatedly so that the P (for programme) or ◿ (for volume) indication appears on the screen, and then adjust with the →•← +/– buttons.

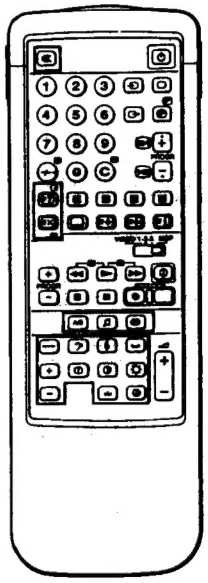
Note: To restore to factory set level press →•← +/– together.

How to view the video input picture

Press ⊖. To return to the TV mode, press ▢. For further details, refer to page 18.

1-4. ADVANCED TV OPERATION





This section shows you how to use convenient features and how to adjust the picture and sound to your taste.
Use the full-function side of the Remote Commander.

How to use on-screen display and special sound features

You can enjoy the following convenient features.

How to	Action	To resume normal picture/ sound
Display on-screen indications	Press ⓓ.	Indications disappear after some seconds
Display programme numbers	Press ⓓ twice	Press ⓓ twice again.
Mute the sound	Press 🔇.	Press 🔇 again.
Select a language in bilingual programmes.	Press A/B. The selected mode of the A-CD-B indicator on the TV lights up.	Press A/B.
Set the sound for music listening	Press ♫.	Press ♫ again.
Use the space sound (special acoustic effect)	Press ⓔ.	Press ⓔ again.
Request the time	Press ⓒ.	Press ⓒ again.

How to adjust the picture and sound

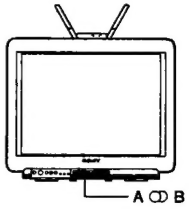
Although the picture and sound have been adjusted at the factory, you might want to adjust them to your own taste. To do this, please follow the steps below.

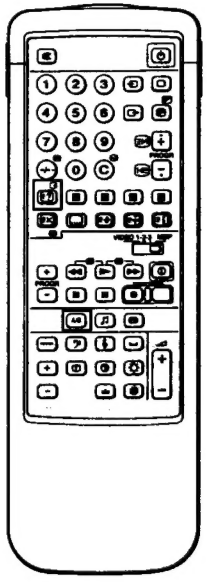
For picture adjustment

To Adjust:	Press:	Then:	Result: (– ⟷ +)
Picture:			
Colour Intensity	◕	+	Less ⟷ More
Picture Contrast	◑		Less ⟷ More
Brightness	☼	–	Dark ⟷ Bright
Sound:			
Bass	♪	+	Less ⟷ More
Treble	♩		Less ⟷ More
Balance	◺◿	–	More Left ⟷ More Right

To reset the picture and sound to factory set levels press →·←.

On the set:
Press →·← +/– buttons simultaneously.





How to select a NICAM broadcast*

This Sony TV has been designed to select Nicam broadcasts when available. Whenever a Nicam broadcast is received, the ⋈ symbol appears briefly on the screen. When the Nicam programme ends, or you switch channels to one without Nicam, the ⋈ symbol appears. To check if the channel you are watching is receiving Nicam, press the on screen display button ⓓ, on the full function side of the remote commander.

How to select the sound of your choice

Nicam programmes can be broadcast in two ways. You may select the sound you want to hear in either of these, by pressing the ⓔ button on the full function side of the remote commander.

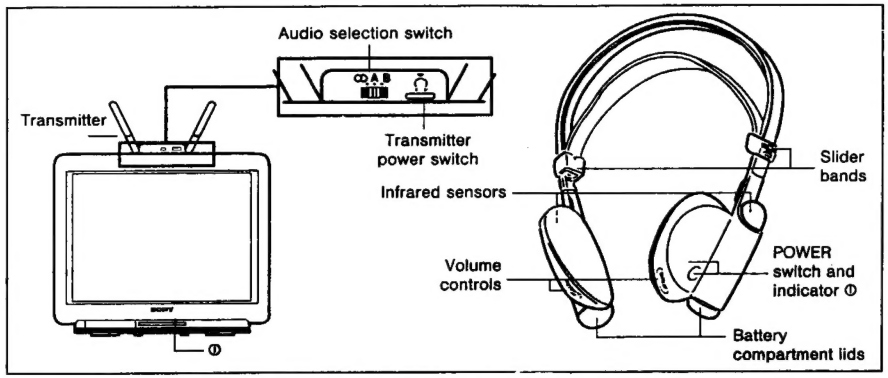
Service being broadcast	Action	The sound you hear	Indication on the TV A CD B
Nicam		Stereo/Mono (2-channel)	☐ ☐
	Press A/B	Normally broadcast sound	☐ ☐
	Press A/B again to return to Stereo/Mono (2-channel)		

Bilingual		Language A	☐
	Press A/B	Language B	☐
	Press A/B	Normally broadcast language	☐ ☐
	Press A/B again to return to language A		

* Depending on availability of service.

1-5. USING THE HEADPHONES

This cordless stereo headphones system uses infrared rays allowing you to enjoy the benefits of normal TV viewing with high quality sound, free from the restriction of a headphones cord.



How to turn on the Transmitter

Action	Result
1 Switch on the TV and press on the transmitter.	The transmitter will turn on and the infrared emitter lights will glow. Press again to switch off.
2 Carefully raise both the transmitters so that they are sufficiently visible. **Note:** For best reception, rotate the transmitter lens to face the listening position.	The audio signal is now being transmitted.

How to turn on the Headphones

Press on the headphones.	The headphones will turn on and the indicator light will glow. Press again to switch off.

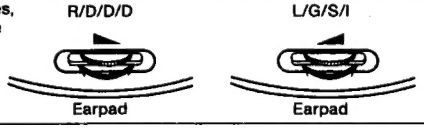
Note: The headphones will automatically turn themselves off after approximately 3 hours. To continue use, turn on the power switch again.

Listening to a program

1 Put on the headphones and, if necessary, adjust the slider bands for comfort.

2 Select the required viewing channel using the Remote Commander.

3 Adjust the volume controls, on the headphones, so that the volume levels of both channels are the same.



Note: Be sure not to cover the infrared sensors with your hands or hair, or expose the headphones to direct sunlight.

Using the transmitter audio switch*

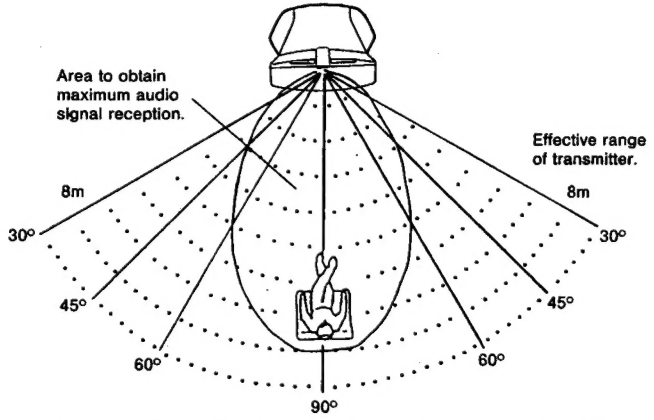
By adjusting the audio switch on the transmitter you can select the sound of your choice. The A-○○-B indicators on the TV set will identify which service is being broadcast.

Service being broadcast	Indication on the TV A-○○-B	Transmitter audio switch position		
		○○	A	B
Nicam		Stereo/Mono (2-channel)	Left channel	Right channel
		Normally broadcast sound		
Bilingual		Language A+B	Language A	Language B
		Normally broadcast language		

* Depending on availability of service.

Coverage of the infrared rays

The infrared rays will not penetrate walls or opaque glass, therefore, the headphones must be used within the 'in sight' area of the transmitter.



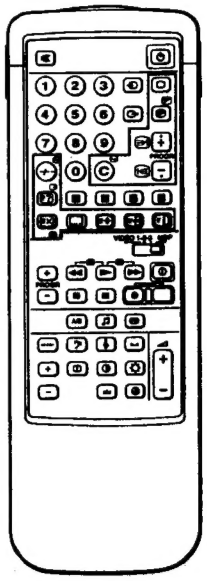
Be sure to remain within the effective range of the infrared rays while viewing the TV. However, should you use the headphones at too great a distance, from the transmitter, the audio signal will become weak and you may experience a hissing noise.
Note: These phenomena are inherent to infrared-ray communication and do not mean that there is a problem with the unit itself.

General transmitter information

Carrier frequency: Right 2.8 MHz Left 2.3 MHz	Frequency response: 18-22,000 Hz
Effective range: Up to 8m approx.	Distortion: Less than 1% at 1 KHz

Note: This appliance conforms with EEC directive 87/308/EEC regarding interference suppression.

1-6. TELETEXT OPERATION



TV stations broadcast teletext programmes via the TV channels. To receive teletext programmes, use the buttons indicated in green on the full side of the Remote Commander.
With the simple side of the Remote Commander, only the basic operation is possible.

How to View the Teletext

Action	Result
1 Select the channel which carries the teletext service you wish to see.	The channel changes on the screen.
2 Press ▣.	 If the teletext signal is not broadcast, then p100 is displayed.
3 Input three digits for the page number using the number buttons. **Note** If you make a mistake, type in any three digits, then re-enter the correct page number.	The numbers are entered on the screen. The requested page will appear in a few seconds.
To return to the TV mode. Press ▢. **To change the teletext channels** First press ▢ to return to the TV mode, then repeat steps 1 to 3.	

Note
If the signal of the TV channel is weak, teletext errors may often occur.

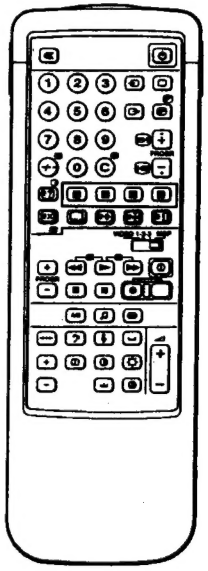
How to Use the Advanced Features of Teletext

How to	Action	Result (On-screen display)
Request the index page.	Press ▣ (INDEX).	 The index page appears.
Request the subtitle page (p888).	Press ▢.	The subtitle page is displayed (p888).
Access the next or preceding page.	Press ⊞ (PAGE +) or ⊟ (PAGE –).	 The next or preceding page appears.

How to	Action	Result
Superimpose the teletext display on the TV programme.	Press ▣ once if you are in text mode, or press ▣ twice if in TV mode. To return to the normal teletext display press ▣ again.	 The teletext displays are superimposed on the TV programmes.
Prevent a teletext page from being updated or changed.	Press ⊞ (HOLD). To resume normal teletext reception, press ▣ (TEXT/MIX).	 The HOLD symbol (⊞) appears on the screen and the chosen sub-page is held until you cancel.
Enlarge the teletext display.	Press ⊡ once to enlarge the upper half. Press twice to enlarge the lower half. Press again to restore the normal display.	 The upper half is enlarged.
Reveal concealed information (e.g. answers to a quiz).	Press ◫ (REVEAL). Press again to conceal the information.	 The information is revealed.
Watch the TV programme while waiting for a requested page to be displayed.	1. Request a new page.	The numbers are entered.
	2. Press ⊠ (TEXT CL).	The TV program is displayed, and the requested page number and other teletext data appear at the top of the screen.
	3. When the requested page has been captured, the page number remains and the other data disappears.	
	4. Press ▣ to view this page.	The requested page is displayed.

Some of the features may not be available depending on the Teletext service.

1-7. ADDITIONAL INFORMATION



How to use the FASTEXT Feature

FASTEXT feature allows you to access pages quickly with one key operation.
When a FASTEXT page is broadcast, a colour coded menu appears at the bottom of the screen. Each coloured prompt corresponds to the coloured buttons on either side of your Remote Commander.

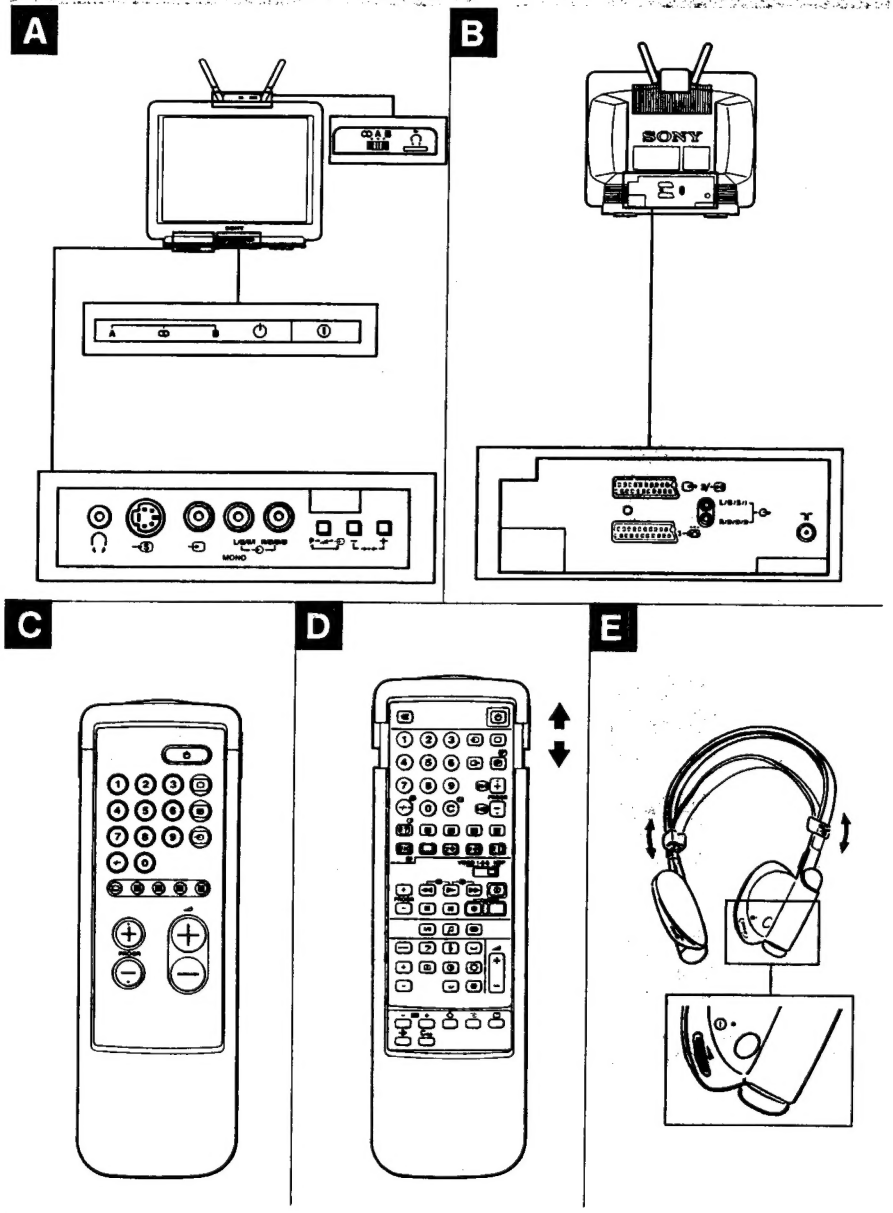
Operation

Action	Result
Press one of the coloured buttons which corresponds to the coloured prompt on the teletext.	The selected teletext page appears.

Note
Correct FASTEXT operation depends on the necessary signals sent from the TV station.

Summary Note
A brief explanation of all TV and Commander functions can be referred to on page 21.

Parts Identification



This section briefly describes the buttons and controls on the TV set and on the Remote Commander. For more information, refer to the pages given next to each description.

A TV set – Front

Sign	Name	Refer to page
⏻	Main power switch	4
⏻	Standby indicator	4
A-◯◯-B	NICAM indicators	10, 11
∩	Headphones jack (stereo minijack)	17
S-Video Video Audio	Input jacks (S-video/ video/audio)	17
P Volume Input	Function selector (Programme/ volume/input)	9, 18
− +	Adjustment buttons for function selector	9, 18
∩	Transmitter power switch	12
◯◯-A-B	Audio mode selector	12

B TV set – Rear

Sign	Name	Refer to page
2/S-Video	21-pin Euro-AV connector (S-video/video input, TV/video output)	17
1	21-pin Euro-AV connector (RGB/ video input, TV output	17
	Audio output jacks (phono jacks)	17
	Aerial terminal (IEC type)	3

C Remote Commander – simple side

Sign	Name	Refer to page
	Input mode selector	18
	Teletext button	14
	Fastext buttons	16
	TV mode selector	4
⏻	Standby button	4
1,2,3,4,5, 6,7,8,9, and 0	Number buttons	9
–/--	Double-digit entering button	9
+/–	Volume control button	9
PROGR +/–	Programme selector	9

D Remote Commander – full function side

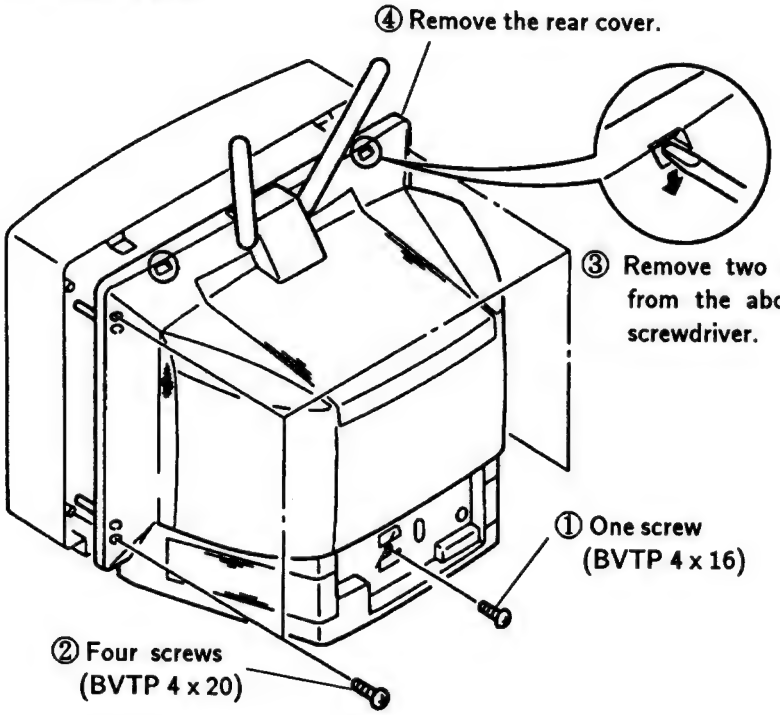
Sign	Name	Refer to page
	Mute on/off button	10
⏻	Standby button	4
1,2,3,4,5, 6,7,8,9, and 0	Number buttons	9
	Input mode selector	18
	TV power on/TV mode selector button	4
	Output mode selector	18
	Teletext button	14
	Music button	10
A/B	Selector for NICAM	11
–/--	Double-digit entering button	9
C	Direct channel entering button	6, 7
	Space sound button	10
	Request time display	10
	Teletext operation buttons	14, 15
	Fastext buttons	16
	On-screen display button	10
	Picture and sound adjustment reset button	10
+/–	Volume control	9
PROGR +/–	Programme selector	9
+/–	Picture and sound controls	10
VIDEO 1/2/3, MDP	Video equipment selector	19
◀◀ ▶ ▶▶ ■ ❚❚ ●	Video equipment operation buttons	19
Coo	Programme number clear button	8
	Channel preset button	5 ... 8
− +	Tuning buttons	5
◇	Channel store button	5 ... 8
	Station label button	7

E Headphones

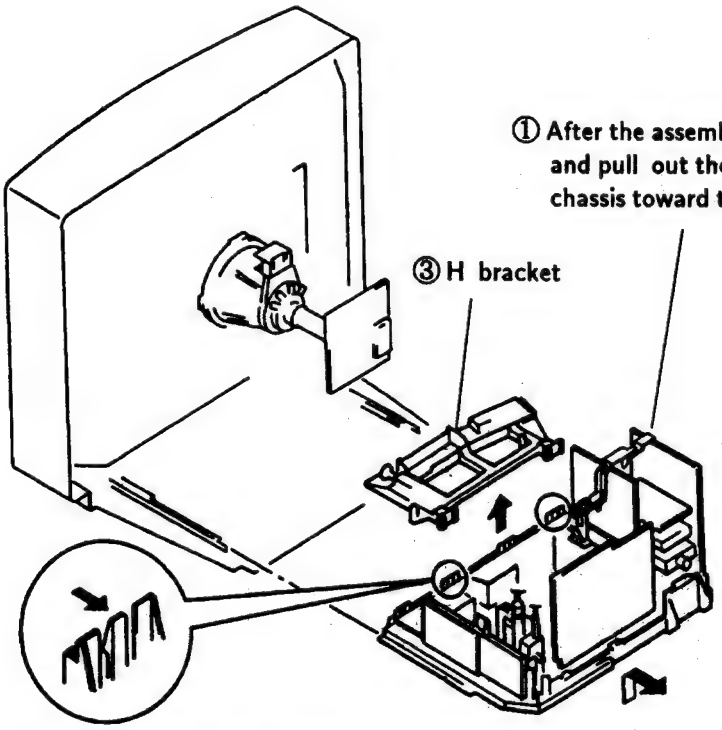
Sign	Name	Refer to page
⏻	Power switch	12
	Volume control	12

SECTION 2
DISASSEMBLY

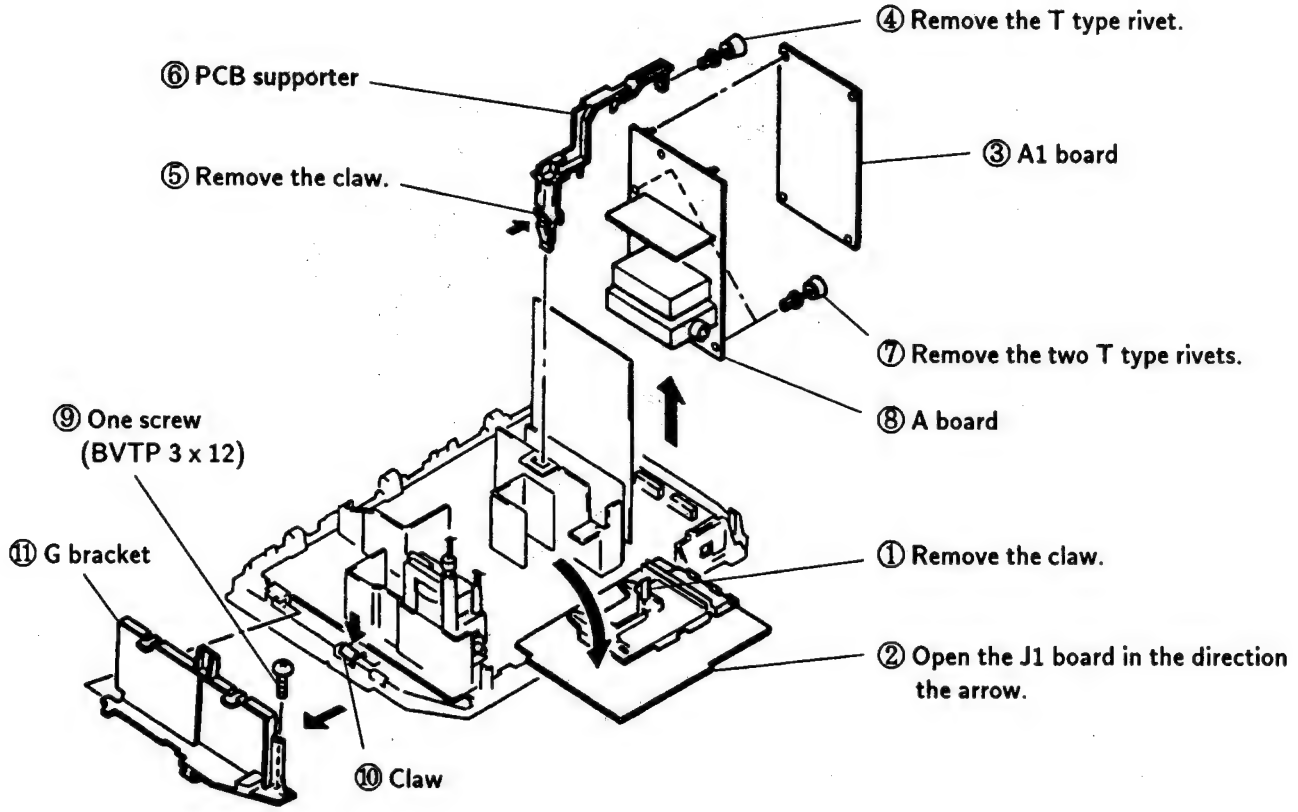
2-1. REAR COVER REMOVAL



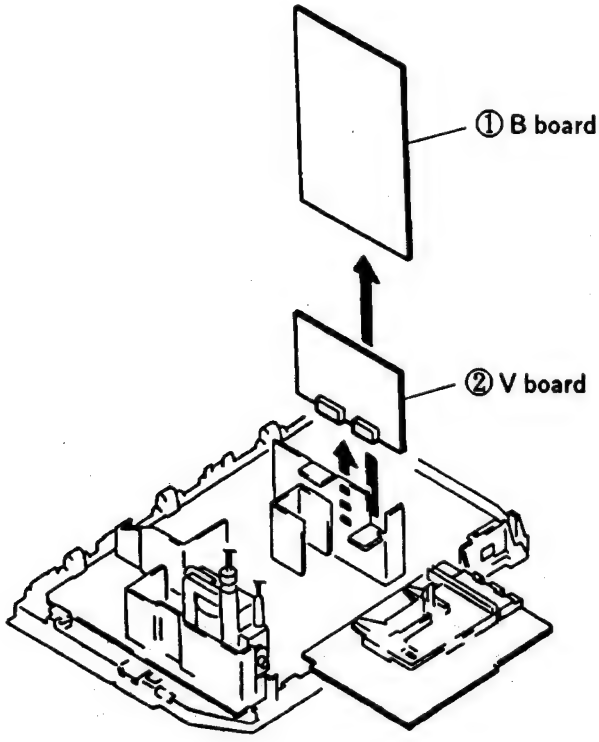
2-2. CHASSIS ASSEMBLY REMOVAL



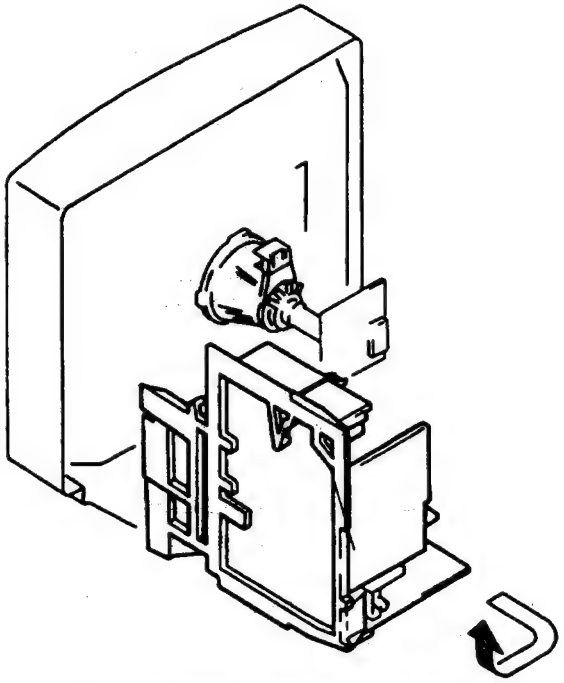
2-3. A, A1, J1 BOARDS AND G BRACKET REMOVAL



2-4. B AND V BOARDS REMOVAL

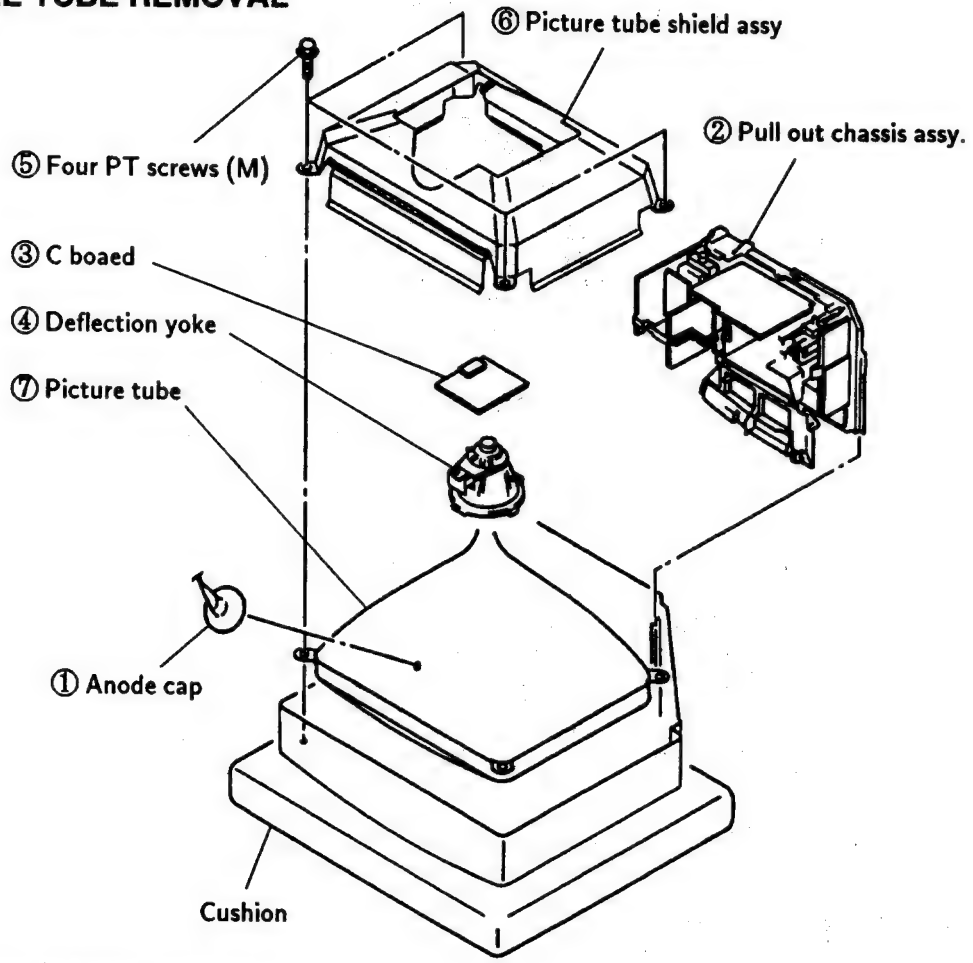


2-5. SERVICE POSITION



① Remove main chassis assembly in the direction of the arrow.

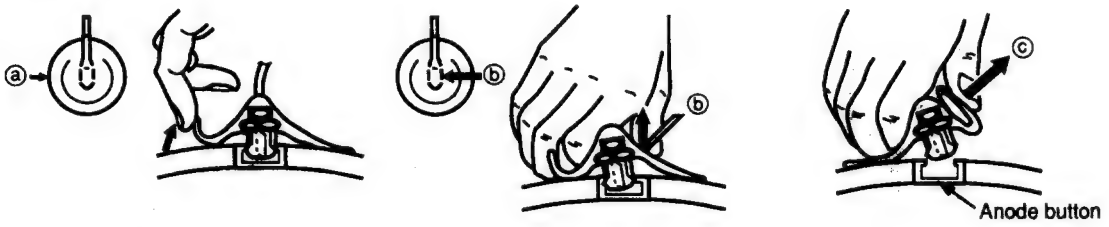
2-6. PICTURE TUBE REMOVAL



• REMOVAL OF ANODE-CAP

Note: Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield, or carbon painted on the CRT, after removing the anode.

• **REMOVING PROCEDURES**



① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.

② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.

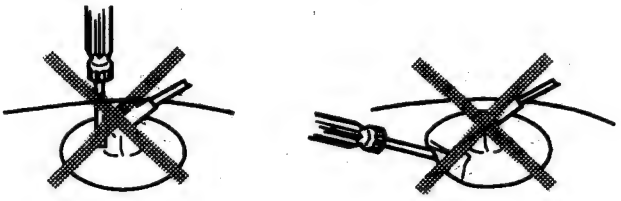
③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of arrow ⓒ.

• **HOW TO HANDLE AN ANODE-CAP**

① Don't hurt the surface of anode-caps with sharped material !

② Don't press the rubber hardly not to hurt inside of anode-caps !
A metal fitting called as shatter-hook terminal is built in the rubber.

③ Don't turn the foot of rubber over hardly !
The shatter-hook terminal will stick out or hurt the rubber.



SECTION 3
SET-UP ADJUSTMENTS

- When complete readjustment is necessary or a new picture tube is installed, carry out the following adjustments.
- Unless there is specific instruction to the contrary, carry out these adjustments with the rated power supply.
- Unless there is specific instruction to the contrary, set the controls and switches this way :
  - ◑ Contrast ·····80%
    (or remote control normal)
  - ☼ Brightness ·····50%
- Carry out the following adjustments in this order:
  1. Beam landing
  2. Convergence
  3. Focus
  4. White balance

Note : Testing equipment required
1. Color bar/pattern generator
2. Degausser
3. DC power supply
4. Digital multimeter
5. Oscilloscope

Preparations :
- In order to reduce the influence of geomagnetism on the set's picture tube face it east or west.
- Switch on the set's power and degauss with the degausser.

3-1. BEAM LANDING

1. Input the white signal with the pattern generator.
   Contrast
   Bightness } normal
2. Position neck ass'y as shown in Fig 3-2.
3. Set the pattern generator raster signal to red.
4. Move the deflection yoke to the rear and adjust

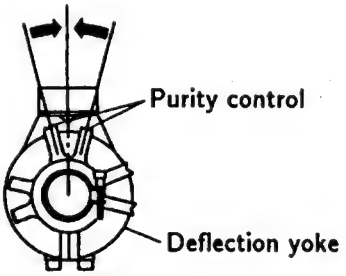
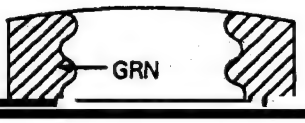


Fig.3-2

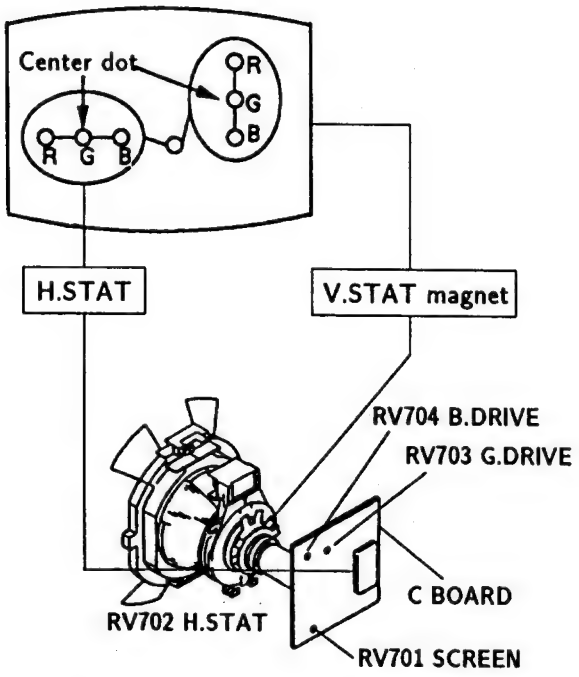


3-2. CONVERGENCE

Preparations :

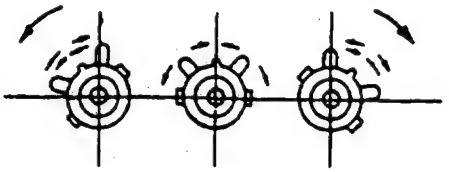
- Before starting this adjustment, adjust the focus, horizontal size, and vertical size.
- Minimize the brightness setting.
- Provide dot pattern.

(1) Horizontal and vertical static convergence

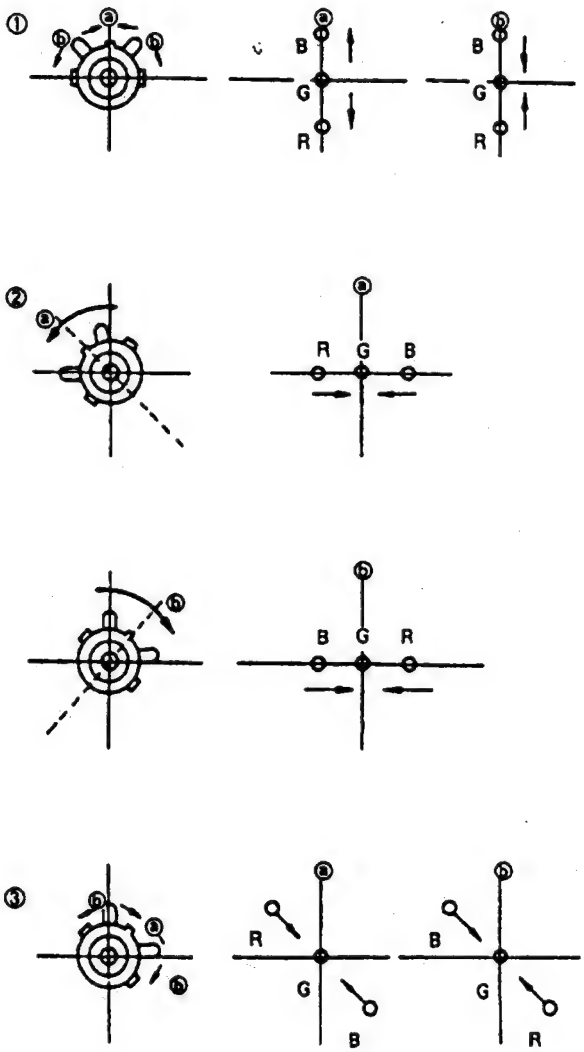


1. (Moving horizontally), adjust the H.STAT control so that the red, green, and blue points are on top of each other at the center of the screen.
2. (Moving vertically), adjust the V.STAT magnet so that the red, green, and blue points are on top of each other at the center of the screen.
3. If the H.STAT variable resistor cannot bring the red, green, and blue points together at the center of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V. STAT magnet in the manner given below.
   (In this case, the H.STAT variable resistor and the V.STAT magnet influence each other)

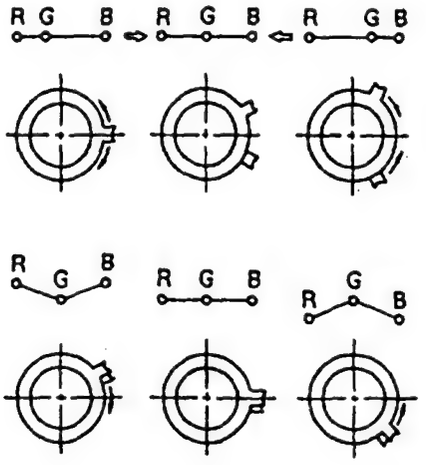
- Tilt the V.STAT magnet and adjust the static convergence by opening or closing the V.STAT magnet.



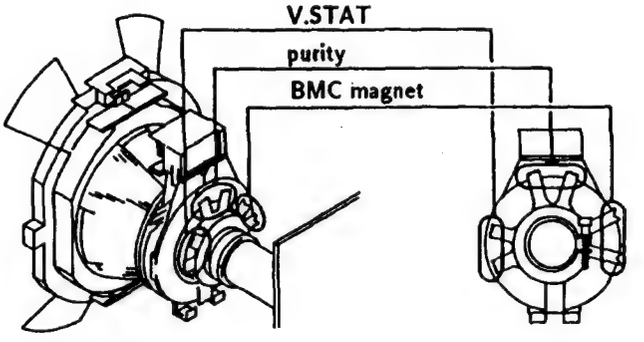
4. If the V.STAT magnet is moved in the direction of the ⓐ and ⓑ arrows, the red, green, and blue points move as shown below.



- Operation of BMC (Hexapole) Magnet



- The respective dot positions resulting from moving each magnet interact, so be sure to perform adjustment while tracking.
  Use the H.STAT VR to adjust the red, green, and blue dots so they coincide at the center of screen (by moving the dots in the horizontal direction).

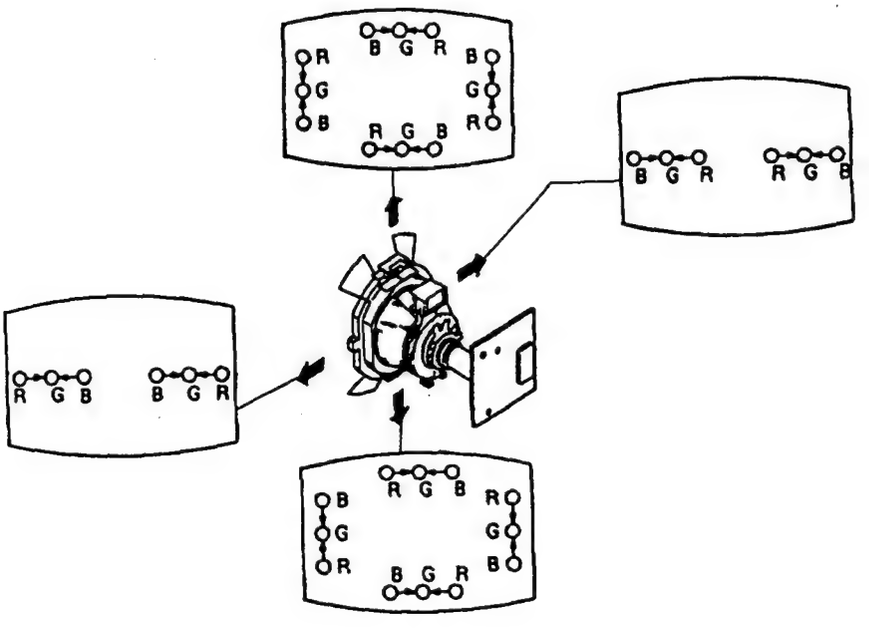


(2) Dynamic Convergence Adjustment

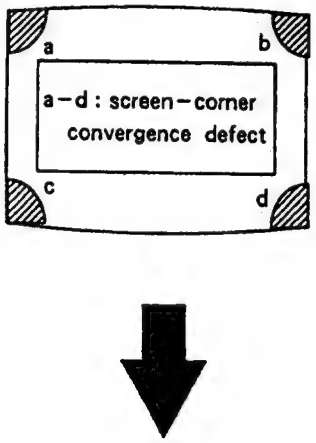
Preparations :

Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence.

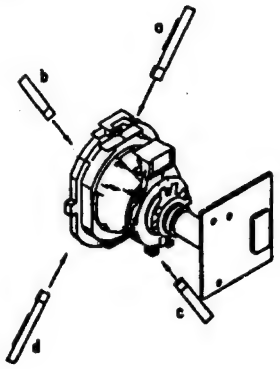
1. Slightly loosen the deflection yoke screws.
2. Remove the deflection yoke spacer.
3. Move the deflection yoke as shown in the figure below and optimize the convergence.
4. Tighten the deflection yoke screws.
5. Install the defelection yoke spacer.



(3) Screen corner convergence



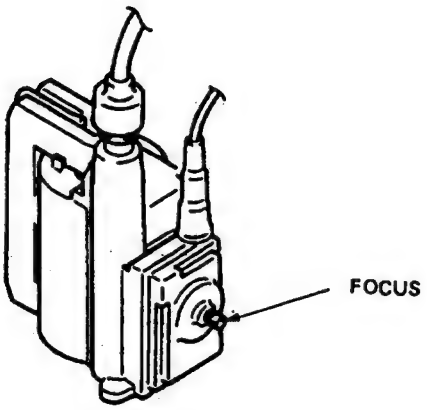
Install the permalloy assembly for the section with faulty.



Permalloy

3-3. FOCUS

Adjust the focus to optimize the screen.



3-4. WHITE BALANCE

[Screen G2 setting]

1. Input the dot signal from the pattern generator.
2. Set the picture brightness control to its lowest level.
3. Apply 170V DC to the R, G, and B cathodes with an external power supply.
4. While watching the picture, adjust G2 control RV701 (Screen) to the point just before the return lines disappear.

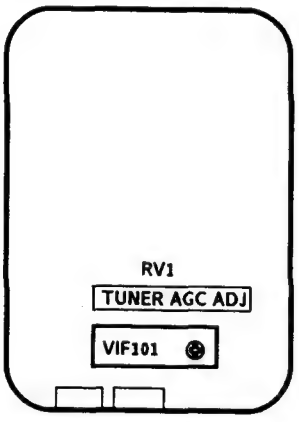
[White balance adjustment]

1. Input an all-white signal from the pattern generator.
2. Set the picture brightness and color controls to their normal levels.
3. Use the RV704 (B Drive) and RV703 (G Drive) to adjust white balance.

In the adjustments below, have the picture color and brightness settings at their normal levels unless there is a specific instruction to the contrary.

SECTION 4
CIRCUIT ADJUSTMENTS

4-1. A BOARD ADJUSTMENTS

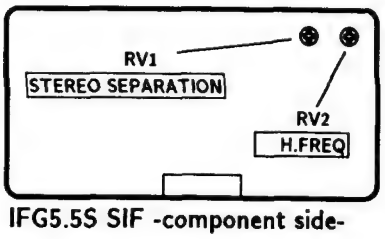


A BOARD (COMPONENT SIDE)

TUNER AGC ADJUSTMENT (AGC VR)

1. Align with an appropriate signal between stations.
2. Adjust AGC VR so that snow noise and cross modulation just disappear from the picture.

IFG5.5S SIF



IFG5.5S SIF -component side-

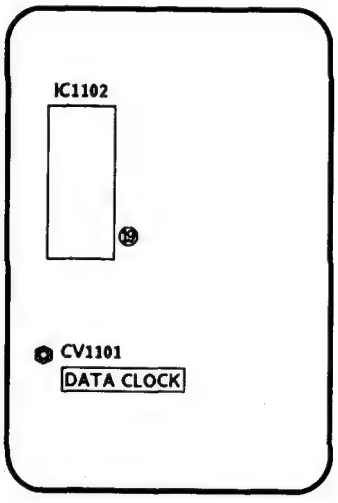
STEREO SEPALATION ADJUSTMENT (RV1)

1. Input stereo signals. (L-CH 400Hz, R-CH 1KHz)
2. Check the stereo indicator.
3. Connect on oscilloscope to pin⑧ (CH1) of CN1 through band pass filter of 1KHz
4. Adjust RV1 so that 1KHz voltage goes down to the minmum.

H FREQ (RV2)

1. Input a PAL COLOR BAR signal, then connect a jumper between pin⑫ IC4 and GND.
2. Connect a frequency counter to pin④ IFG5.5S (HP) of CN1 through a probe of 10 : 1.
3. Adjust RV2 (H.FREQ) 15.625±50Hz.
4. After adjustment, remove the jamper.

4-2. A1 BOARD ADJUSTMENTS

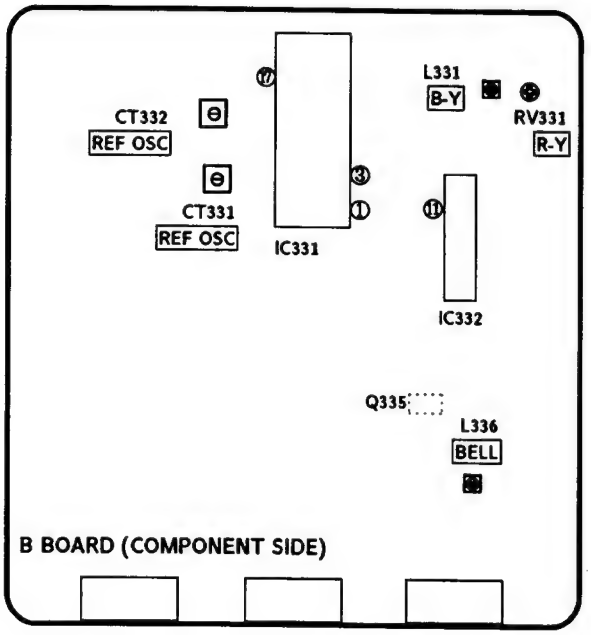


A1 BOARD (COMPONENT SIDE)

DATA CLOCK ADJUSTMENT (CV1101)

1. Tune in a no signal.
2. Connect a frequency counter to pin⑲ of IC1102 (PCLK) through a probe of 10 : 1
3. Adjust CV1101 (DATA CLOCK) so that frequency becomes 728.022KHz±1Hz.

4-3. B BOARD ADJUSTMENTS



REFERENCE OSCILLATOR ADJUSTMENT (CT332 8.8MHz)

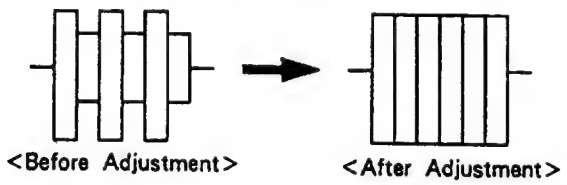
1. Input a PAL color bar signal.
2. Ground pin ⑰ of the IC331.
3. Adjust CT332 to obtain synchronization.

REFERENCE OSCILLATOR ADJUSTMENT (CT331 7.16MHz)

1. Input an NTSC color bar signal.
2. Ground pin ⑰ of IC331.
3. Adjust the CT331 to obtain synchronization.
4. Remove the jumper grounding pin ⑰ of IC331.

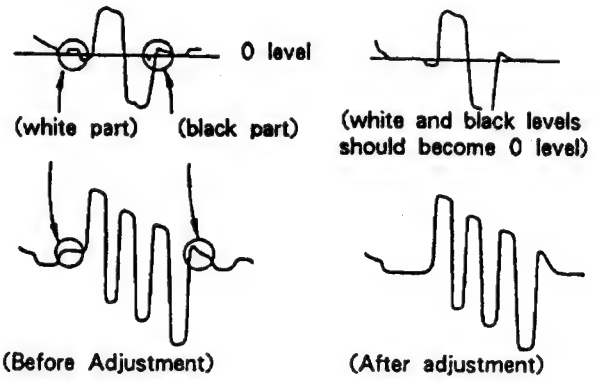
BELL FILTER ADJUSTMENT (L336)

1. Input a SECAM color bar signal.
2. Connect the oscilloscope to the emitter of Q335.
3. Adjust L336 so that the waveform is flat.

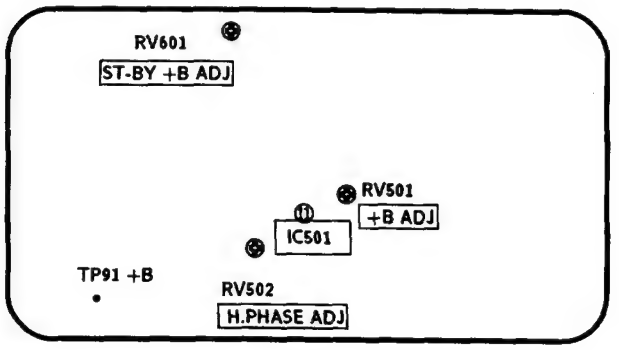


DISCRIMINATION ADJUSTMENTS (RV331 and L331)

1. Input a SECAM color bar signal.
2. Connect the oscilloscope to pin ① of IC331.
3. Adjust RV331 until the white and black sections of the waveform at pin ① are at the 0 level.
   Connect the oscilloscope to pin ③ of IC331.
4. Adjust L331 until the white and black sections of
5. the waveform at pin ③ are at the 0 level.



4-4. D BOARD ADJUSTMENTS



D BOARD (COMPONENT SIDE)

+B ADJUSTMENT (RV501)

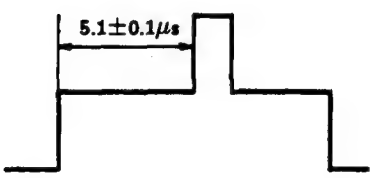
1. Connect the digital multimeter to TP91.
2. Adjust RV501 to obtain 135±0.2V.

ST-BY +B ADJUSTMENT (RV601)

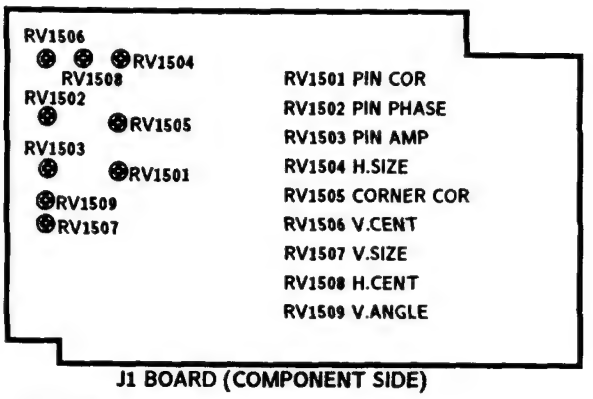
1. Put the system into ⏻ standby mode (remote commander).
2. Connect the digital multimeter to TP91.
3. Adjust RV601 to obtain 135±3V.
4. Take the system out of ⏻ standby mode (remote commander).

H.PHASE ADJUSTMENT (RV502)

1. Input a PAL color bar signal.
2. Set the picture and brightness controls to their normal levels.
3. Set RV1508 (H.CENT) to its mechanical center.
4. Connect the oscilloscope to pin ⑪ (SCP) of IC 501.
5. Rotate RV502 to adjust to 5.1±0.1μs.



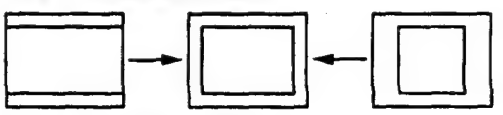
4-5. J1 BOARD ADJUSTMENTS



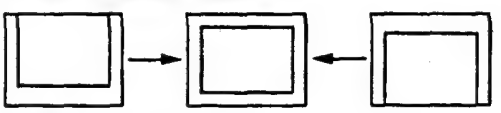
J1 BOARD (COMPONENT SIDE)

RV1508
H. CENT (HORIZONTAL CENTER)

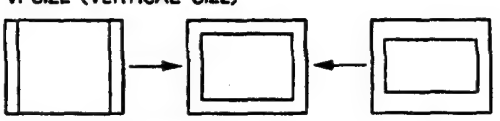
RV1504
H. SIZE (HORIZONTAL SIZE)



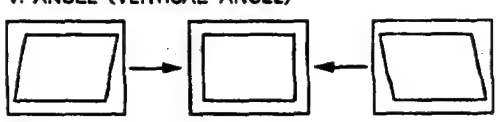
RV1506
V. CENT (VERTICAL CENTER)



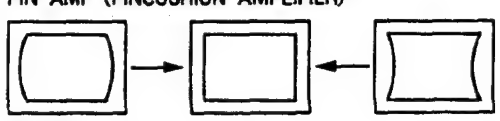
RV1507
V. SIZE (VERTICAL SIZE)



RV1509
V. ANGLE (VERTICAL ANGLE)

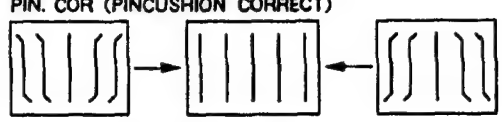


RV1503
PIN AMP (PINCUSHION AMPLIFIER)

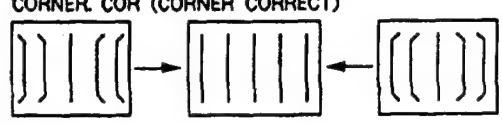


RV1502
PIN PHASE (PINCUSHION PHASE)

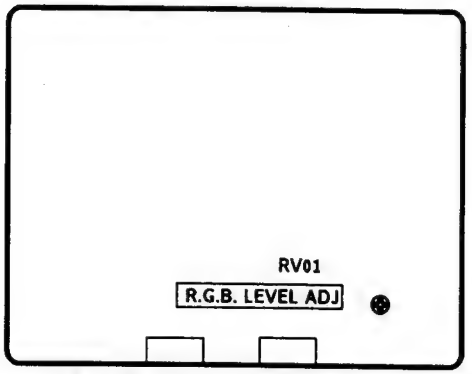
RV1501
PIN. COR (PINCUSHION CORRECT)



RV1505
CORNER COR (CORNER CORRECT)



4-6. V BOARD ADJUSTMENT



V BOARD (COMPONENT SIDE)

RGB LEVEL ADJUSTMENT (RV01)

1. Maximize the picture setting.
2. Adjust RV01 so that the RGB output is 0.75V.

4-7. SECONDARY ADJUSTMENTS

SUB BRIGHTNESS ADJUSTMENT

1. Set the system to receive a test pattern.
2. Press → • ← on the remote commander to put the system into normal mode.
3. Switch off the power.
4. While depressing the adjusting buttons + and − simultaneusly, turn on the power. (SUB mode is obtained)
5. Minimize the ◑ contrast setting.
6. Adjust the ☼ brightness control so that the gray scale 0 IRE section is cut off completely and the 20 IRE section is barely glowing.
7. Depress the ◇ (store) button of the remote commander.
   (SUB mode is released)

   If there is no test color pattern

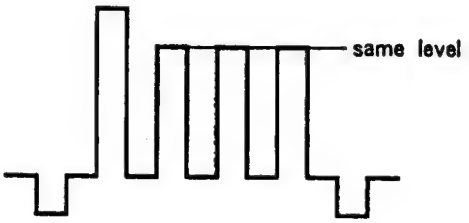
1. Set the system to receive a color pattern.
2. Press → • ← on the remote commander to put the system into normal mode.
   Set the ◒ color to its normal state.

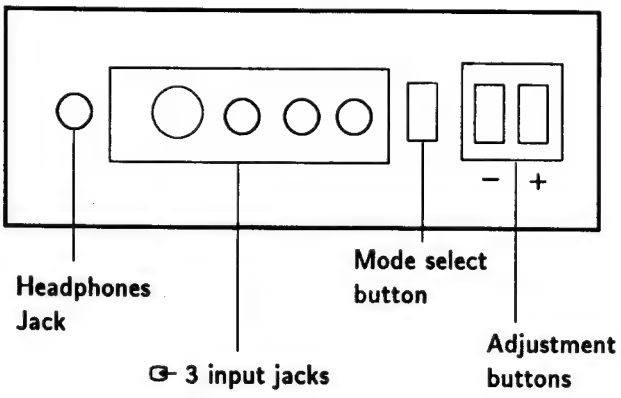
3-5. Steps are the same as above.

6. Since 20 IRE is nearly blue, adjust the ☼ brightness control so that the blue barely glows.
7. Same as step 7 above.
8. Press → • ← on the remote commander to put the system into normal mode.

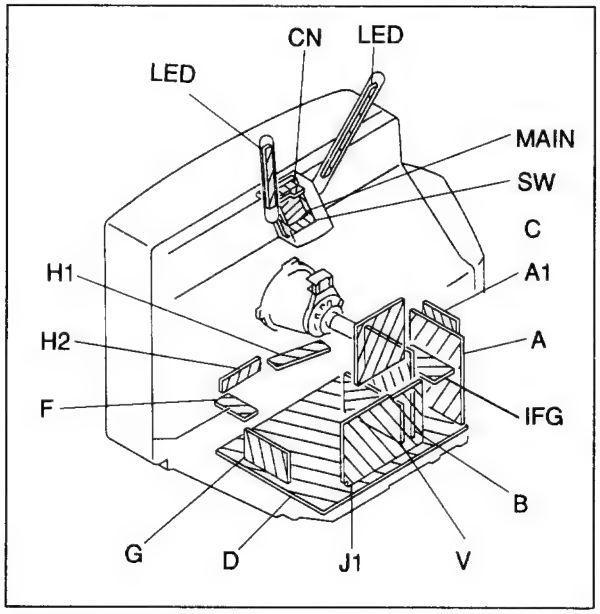
SUB COLOR ADJUSTMENT

1. Set the system to receive color bars.
2. Press → • ← on the remote commander to put the system into normal mode.
3. Cut off the power.
4. While depressing the adjustment buttons + and − simultaneusly, turn on the power. (SUB mode is obtained).
5. Adjust the color control so that the B out waveform (pin ⑤ of C board connector CNC72) is as shown in the figure below.
6. Depress the ◇ (store) button of the remote commander. (SUB mode is released)





5-2. CIRCUIT BOARDS LOCATION



Note:
Components identified by shading and marked ⚠ are critical for safety. Replace only with the part number specified.

5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note:

- All capacitors are in μF unless otherwise stated (p=pF). Working voltage of 50V or less are not indicated, except for electrolytics.
- Resistors which do not hane a power rating value shown are as follows.

  Pitch: 5 mm
  Power rating: 1/4W

  Chip resistors are 1/10W.
- All resistor values are in Ohms. kΩ=1000Ω, MΩ=1000kΩ.
- : nonflammable resistor.
- : fusible resistor.
- : internal component.
- : panel outline or servicing adjustment.
- All variable and adjustable resistors have characteristic curve B. unless otherwise noted.
- All voltages shown are in Volts.
- Readings were taken with a 10 MΩ digital multimeter.
- Readings were taken with a colour-bar signal input.
- Voltage variations may be occur to normal production tolerance.
- : Voltage supply rails.
- : Signal path.

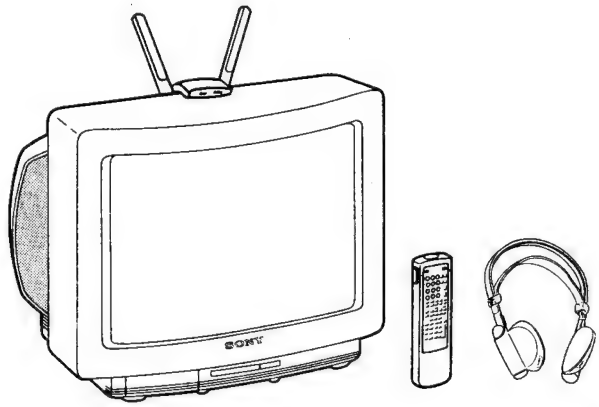
Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NON-FLAMMABLE CARBON
	: FUSE	NON-FLAMMABLE FUSIBLE
	: RS	NON-FLAMMABLE METALOXIDE
	: RB	NON-FLAMMABLE CEMENT
	: RW	NON-FLAMMABLE WIREWOUND
	: ※	VARIABLE RESISTOR
COIL	: LF-8L	MINIATURE INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

KV-H2511D
MDR-IF310/RM-816

SERVICE MANUAL

AEP Model
Chassis No. SCC-F07D-A



AE-1C CHASSIS

MODELS OF THE SAME SERIES	
KV-H2511D	KV-H2513E
KV-H2511A	KV-H2512U
KV-H2510B	

SPECIFICATIONS

【KV-H2511D】

Television system	B/G/H
Color system	PAL, SECAM, NTSC3.58, NTSC4.43
Stereo system	GERMAN stereo
Channel coverage	B/G/H VHF: E2-E12 UHF: E21-E69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10
Picture tube	Hi-Black Trinitron tube Approx. 63.5 cm (25 inches) (Approx. 59 cm picture measured diagonally) 110 ° -degree deflection
Inputs	1 21-pin connector: CENELEC standard including RGB input. 2 21-pin connector: including S video input Flont : 3 Audio and video input jacks: phono jack. Including S Video input Y: 1Vp-p±3dB 75ohm C: 0.3Vp-p±3dB 75ohm
Outputs	21-pin connector: CENELEC standard Headphones jack: stereo minijack External speaker terminals: 2-pin DIN Audio output jacks: phono jack (output dependent upon TV settings)
Sound output	30 W + 30 W
Power consumption	104 Wh
Dimensions incl.speakers	Approx. 575×510×487 mm (w/h/d)
Weight incl.speakers	Approx. 36kg
Supplied accessories	MDR-IF310 Headphones, IEC designation R6 batteries.

-Continued on next page-

MICROFILM

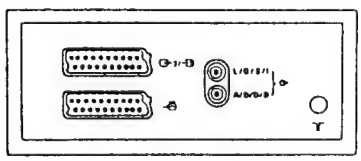
TRINITRON® COLOR TV
SONY®

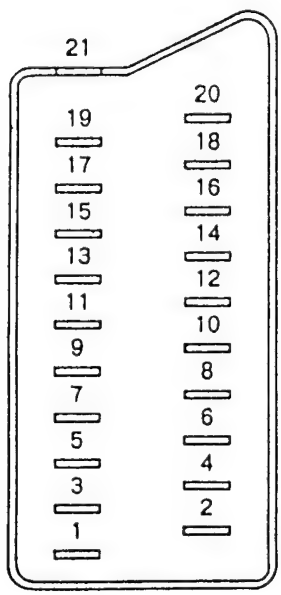
【RM-816】

Remote control system	infrared control
Power requirements	3V dc
	2 batteries IEC designation
	R6 (size AA)
Dimentions	Approx.75×221×23mm (w/h/d)
Weight	Approx.230g (including Batteries)

Design and specifications are subject to change without notice.

21 pin connector (, 2/)





Pin No.	1	2	Signal	Signal level
1	○	○	Audio output B (right)	Standard level: 0.5Vrms Output impedance: Less than 1kohm*
2	○	○	Audio input B (right)	Standard level: 0.5Vrms Input impedance: More than 10kohms*
3	○	○	Audio output A (left)	Standard level: 0.5Vrms Output impedance: Less than 1kohm*
4	○	○	Ground (audio)	
5	○	○	Ground (blue)	
6	○	○	Audio input A (left)	Standard level: 0.5Vrms Input impedance: More than 10kohms*
7	○	●	Blue input	0.7V ± 3dB, 75ohms, positive
8	○	○	Function select (AV control)	High state (9.5 – 12V): Part mode Low state (0 – 2V): TV mode Input impedance: More than 10kohms Input capacitance: Less than 2 nF
9	○	○	Ground (green)	
10	○	○	Open	
11	○	●	Green	Green signal: 0.7V ± 3dB, 75ohms, positive
12	○	○	Open	
13	○	○	Ground (red)	
14	○	○	Ground (branking)	
15	○	–	Red input	0.7V ± 3dB, 75ohms, positive
	–	○	(S signal) croma input	0.3V ± 3dB, 75ohms, positive
16	○	●	Blanking input (Ys signal)	High state (1 – 3V) Low state (0 – 0.4V) Input impedance: 75ohms
17	○	○	Ground (video output)	
18	○	○	Ground (video input)	
19	○	○	Video output	1V ± 3dB, 75ohms, positive Sync: 0.3V (– 3, +10dB)
20	○	–	Video input	1V ± 3dB, 75ohms, positive Sync: 0.3V (– 3, +10dB)
	–	○	Video input/Y (S signal)	1V ± 3dB, 75ohms, positive Sync: 0.3V (– 3, +10dB)
21	○	○	Common ground (plug, shield)	

○ connected ● unconnected (open) * at 20Hz – 20kHz

4 Pin Connector ()

Pin No	Signal	Signal level
1	Ground	
2	Ground	
3	Y (S signal) input	1V ± 3dB 75ohm, positive Sync $0.3V^{3}_{10}$ dB
4	C (S signal) input	0.3V ± 3dB 75ohm, positive

TABLE OF CONTENTS

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

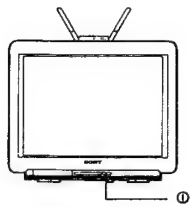
CAUTION

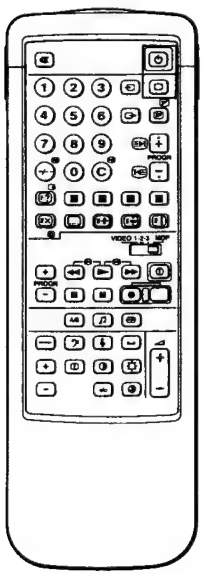
SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

SECTION 1
GENERAL

1-1. SWITCHING ON/OFF

After you have completed the basic preparation your TV is ready to be connected to the mains power supply (220/240V AC, 50Hz).





How to turn the TV on

Action	Result
Press ⏻ on the TV.	The TV will turn on. **Note:** If the screen remains blank, the TV may be in the standby mode. Press ⏾ or any number button on the commander to switch it on.

How to turn the TV off

A Temporarily	
Press ⏻ to enter standby mode.	The TV will be in standby. To return to the TV mode press ⏾.
B Completely	
Press ⏻ on the TV.	The TV will turn off.

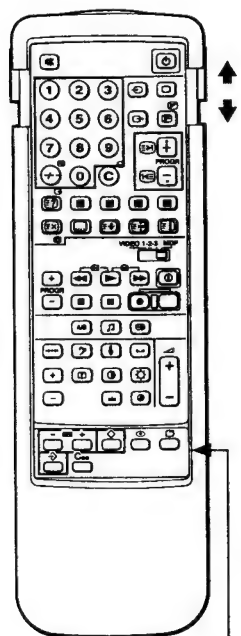
1-2. PRESETTING

After you have installed the TV, you need to preset TV channels.

TV stations broadcast their channels at certain frequencies. You must preset these channels to programme numbers on the TV before you can watch the TV programmes.

There are 60 spaces for storing these channels.

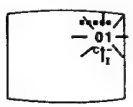
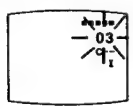
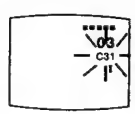
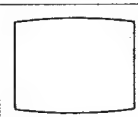
Slide open the full function side of the remote commander to reveal preset buttons.



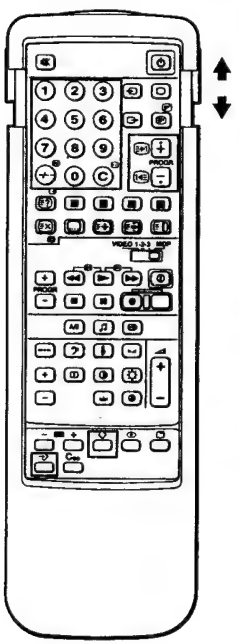
Note: These buttons should be used in preset mode only.

How to preset channels automatically

If you are unfamiliar with the channel numbers of the stations you wish to preset, use "How to preset channels automatically". If you are familiar with the channel numbers refer to "How to preset T.V. channels directly".

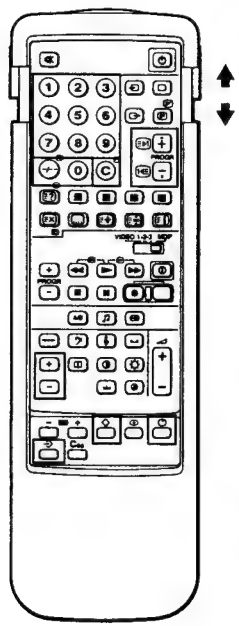
Action	Result
1 Press → to enter the preset mode.	 The programme number will start flashing.
2 Press PROGR + or – or the number buttons to select the programme number to which you want to preset a channel. **Note** To select a double-digit number, use the -/-- button. For example, if you want to choose 23, press -/--, 2, and then 3.	 The programme number changes.
3 Press ⇔ + or – once to search forward or backward for channels.	 When a channel is tuned in and displayed, the search will stop. **Note** If you want to skip a channel, press ⇔ + or ⇔ –.
4 Press ◇ if you want to store the channel which is tuned in. Press → to exit preset mode without storing.	 The channel is now stored and you have returned to TV mode.
5 Repeat steps 1 to 4 to store the other channels.	

Note
By recording the channel numbers displayed after step 3, the direct channel tuning method (page 6) may be used to re-order the programme number sequence to suit your convenience.



How to preset channels directly

Action	Result
1 Press ⇢ to enter the preset mode.	The programme number will start flashing.
2 Press PROGR +/– or the number buttons to select the programme number on which you want to preset a channel. **Note** To select a double-digit number, use the -/-- button. For example, if you want to choose 23, press -/--, 2, and then 3.	The programme number changes.
3 Press C.	The indication "C--" starts flashing on the display.
4 Select the channel number with two digits (e.g. 04) by pressing the number buttons. **Note** Press the second number within 5 seconds after the first one, otherwise the operation will be cancelled.	The channel number changes. **Note** If you have made a mistake the letter "X" will appear. Repeat step 4 again.
5 Press ◇ to store the channel which is tuned in. Press ⇢ to exit the preset mode without storing.	The channel is now stored and you have returned to TV mode.
Repeat steps 1 to 5 to store the other channels.	



How to Name a Station

You can use up to five characters to "name" a channel or station (i.e. BBC1).

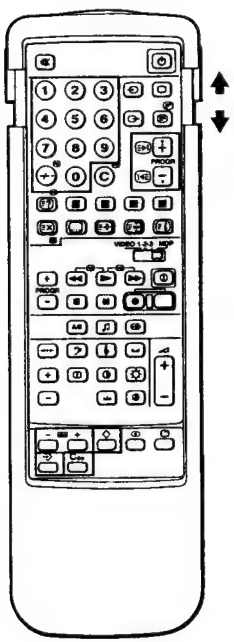
Action	Result
1 Select a programme number you want to name by pressing the PROGR +/– or the number buttons.	The selected programme number will appear.
2 Press ⇢.	The programme number starts flashing.
3 Press ▢.	The first column of the station name indication will start flashing.
4 Press + or – to select a letter in the alphabet, a number, or a blank space.	The letters of the alphabet, numbers and the space ("–") will appear sequentially.
5 Press ▢.	The first character is now set and the second column will start flashing.
6 Repeat steps 4 and 5 to set each letter.	
7 Press ◇.	The channel name is now stored and you have returned to TV mode.

How to tune in a channel temporarily

You can tune a channel in temporarily, if it has not been preset.

Action	Result
1 Press C.	The indication "C" appears on the screen.
2 Select the channel number with two digits by pressing the number buttons (e.g. for channel 4, first press 0, then 4.)	The channel is received, but it is not stored to any programme number.

1-3. BASIC TV OPERATION



How to Skip Programmes

Using the PROGR +/– buttons you can skip unused programme channel numbers. However, the skipped numbers may still be called up using the number buttons.

Action	Result
1 Press ⇨ to enter the preset mode.	The programme number will start flashing.
2 Select the programme number that you want to skip by pressing PROGR +/– or the number buttons.	The programme number changes.
3 Press C00.	The lowest channel number appears under the programme number.
4 Press ◇.	The channel is now stored and you have returned to TV mode.
Repeat steps 1 to 4 to skip other programme numbers.	

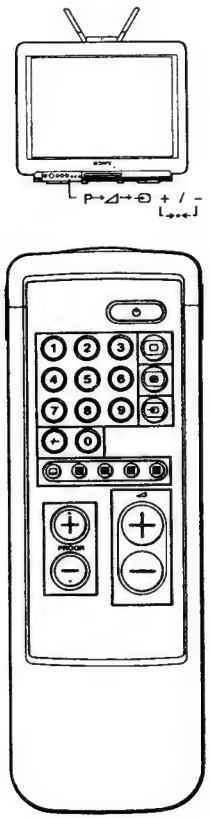
How to Fine Tune Manually

If the picture is distorted, you can fine tune the channel manually.

Action	Result
Press ⊞ + or – repeatedly until the picture looks normal.	The indication ← F → appears on the screen.
Press ⇨ to enter the preset mode.	The programme number starts flashing.
Press ◇.	The fine tuning is stored.

Note: Normal tuning can be restored if you preset the channel once more.

Note: Press ⊥ on door to open.



This section introduces you to the basic control functions which are available on the simple side of the remote commander.

How to Select Programmes

Before you can select programmes make sure that you have preset channels, refer to page 5.

Action	Result
Press PROGR +/– or the number buttons. To select a double-digit number, use the -/-- button. For example, if you want to choose 23, press -/--, 2, and then 3.	The selected programme is displayed.

How to Adjust the Volume

Action	Result
Press ◿ + or –.	The volume markers will appear and are adjusted accordingly.

Basic teletext operation

Select
- The ▤ button to view the teletext.
- The ▢ button to request subtitles (P.888).
- One of the coloured buttons for fastext operation.
- The ▢ button to return to TV mode.

For details about teletext operation, refer to page 14.

How to operate with the buttons on the TV

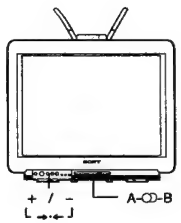
You can also select programmes and adjust the volume using the P→◿→⊖ and →•← +/– buttons on the front of the TV.
For operation, first press the P→◿→⊖ button repeatedly so that the P (for programme) or ◿ (for volume) indication appears on the screen, and then adjust with the →•← +/– buttons.

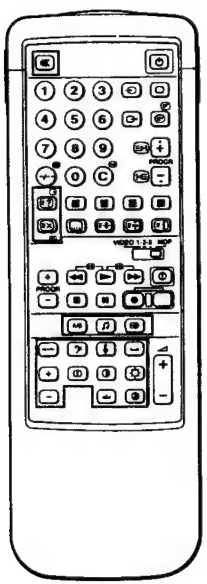
Note: To restore to factory set level press →•← +/– together.

How to view the video input picture

Press ⊖. To return to the TV mode, press ▢. For further details, refer to page 18.

1-4. ADVANCED TV OPERATION





This section shows you how to use convenient features and how to adjust the picture and sound to your taste.
Use the full-function side of the Remote Commander.

How to use on-screen display and special sound features

You can enjoy the following convenient features.

How to	Action	To resume normal picture/ sound
Display on-screen indications	Press ⊡.	Indications disappear after some seconds
Display programme numbers	Press ⊡ twice	Press ⊡ twice again.
Mute the sound	Press 🔇.	Press 🔇 again.
Select a language in bilingual programmes.	Press A/B. The selected mode of the A-CD-B indicator on the TV lights up.	Press A/B.
Set the sound for music listening	Press ♫.	Press ♫ again.
Use the space sound (special acoustic effect)	Press ⊛.	Press ⊛ again.
Request the time	Press ⊙.	Press ⊙ again.

How to adjust the picture and sound

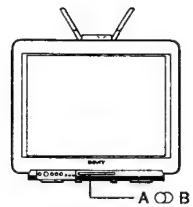
Although the picture and sound have been adjusted at the factory, you might want to adjust them to your own taste. To do this, please follow the steps below.

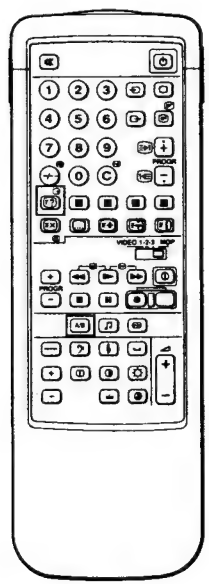
For picture adjustment

To Adjust:	Press:	Then:	Result: (– ⟷ +)
Picture:			
Colour Intensity	◕	+	Less ⟷ More
Picture Contrast	◑		Less ⟷ More
Brightness	☼	–	Dark ⟷ Bright
Sound:			
Bass	♪	+	Less ⟷ More
Treble	𝄞		Less ⟷ More
Balance	◺◿	–	More Left ⟷ More Right

To reset the picture and sound to factory set levels press →·←.

On the set:
Press →·← +/– buttons simultaneously.





How to select a NICAM broadcast*

This Sony TV has been designed to select Nicam broadcasts when available. Whenever a Nicam broadcast is received, the ⋈ symbol appears briefly on the screen. When the Nicam programme ends, or you switch channels to one without Nicam, the ⋈ symbol appears. To check if the channel you are watching is receiving Nicam, press the on screen display button ⊡, on the full function side of the remote commander.

How to select the sound of your choice

Nicam programmes can be broadcast in two ways. You may select the sound you want to hear in either of these, by pressing the ⊡ button on the full function side of the remote commander.

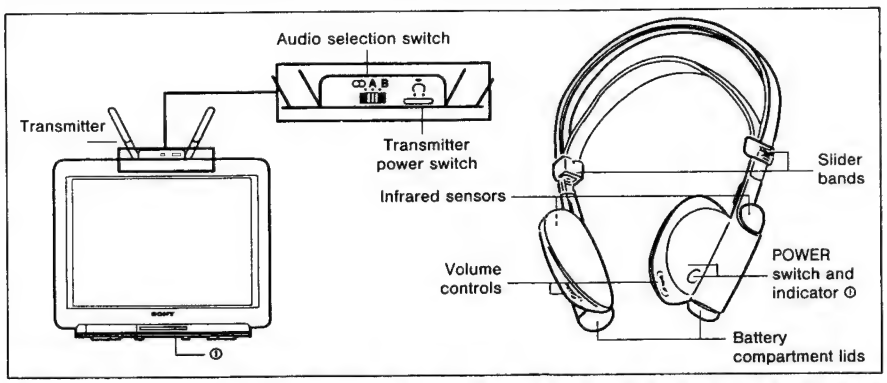
Service being broadcast	Action	The sound you hear	Indication on the TV A CD B
Nicam		Stereo/Mono (2-channel)	☼ ☼
	Press A/B	Normally broadcast sound	▭ ▭
	Press A/B again to return to Stereo/Mono (2-channel)		

Bilingual		Language A	☼ ▭
	Press A/B	Language B	▭ ☼
	Press A/B	Normally broadcast language	▭ ▭
	Press A/B again to return to language A		

* Depending on availability of service.

1-5. USING THE HEADPHONES

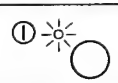
This cordless stereo headphones system uses infrared rays allowing you to enjoy the benefits of normal TV viewing with high quality sound, free from the restriction of a headphones cord.



How to turn on the Transmitter

Action	Result
1 Switch on the TV and press ⏻ on the transmitter.	The transmitter will turn on and the infrared emitter lights will glow. Press ⏻ again to switch off.
2 Carefully raise both the transmitters so that they are sufficiently visible. **Note:** For best reception, rotate the transmitter lens to face the listening position.	The audio signal is now being transmitted.

How to turn on the Headphones

Press ⏻ on the headphones. 	The headphones will turn on and the indicator light will glow. Press ⏻ again to switch off.

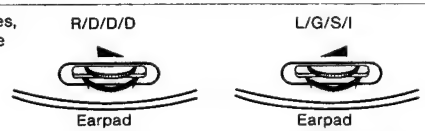
Note: The headphones will automatically turn themselves off after approximately 3 hours. To continue use, turn on the power switch again.

Listening to a program

1 Put on the headphones and, if necessary, adjust the slider bands for comfort.

2 Select the required viewing channel using the Remote Commander.

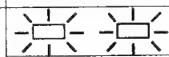
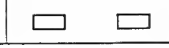
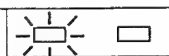
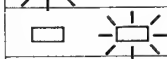
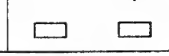
3 Adjust the volume controls, on the headphones, so that the volume levels of both channels are the same.



Note: Be sure not to cover the infrared sensors with your hands or hair, or expose the headphones to direct sunlight.

Using the transmitter audio switch*

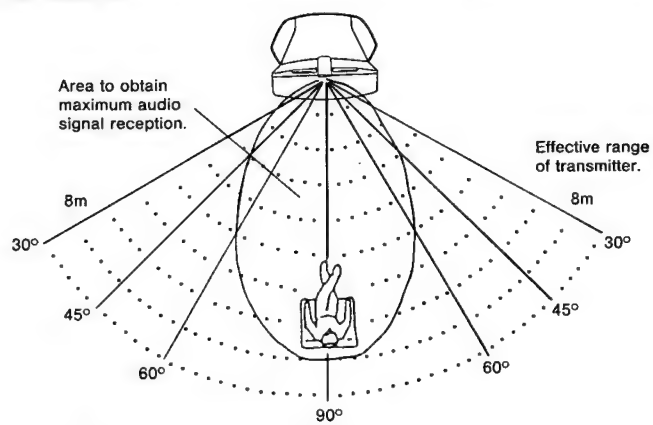
By adjusting the audio switch on the transmitter you can select the sound of your choice. The A-⧉-B indicators on the TV set will identify which service is being broadcast.

Service being broadcast	Indication on the TV A-⧉-B	Transmitter audio switch position		
		⧉	A	B
Nicam		Stereo/Mono (2-channel)	Left channel	Right channel
		Normally broadcast sound		
Bilingual		Language A+B	Language A	Language B
				
		Normally broadcast language		

* Depending on availability of service.

Coverage of the infrared rays

The infrared rays will not penetrate walls or opaque glass, therefore, the headphones must be used within the 'in sight' area of the transmitter.



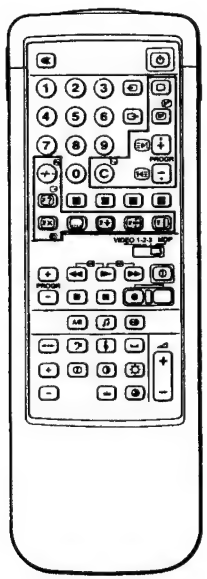
Be sure to remain within the effective range of the infrared rays while viewing the TV. However, should you use the headphones at too great a distance, from the transmitter, the audio signal will become weak and you may experience a hissing noise.
Note: These phenomena are inherent to infrared-ray communication and do not mean that there is a problem with the unit itself.

General transmitter information

Carrier frequency: Right 2.8 MHz Left 2.3 MHz	Frequency response: 18-22,000 Hz
Effective range: Up to 8m approx.	Distortion: Less than 1% at 1 KHz

Note: This appliance conforms with EEC directive 87/308/EEC regarding interference suppression.

1-6. TELETEXT OPERATION



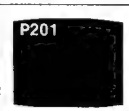
TV stations broadcast teletext programmes via the TV channels. To receive teletext programmes, use the buttons indicated in green on the full side of the Remote Commander.
With the simple side of the Remote Commander, only the basic operation is possible.

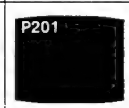
How to View the Teletext

Action	Result
1 Select the channel which carries the teletext service you wish to see.	The channel changes on the screen.
2 Press ▤.	 If the teletext signal is not broadcast, then p100 is displayed.
3 Input three digits for the page number using the number buttons. **Note** If you make a mistake, type in any three digits, then re-enter the correct page number.	The numbers are entered on the screen. The requested page will appear in a few seconds.
To return to the TV mode. Press ▢. **To change the teletext channels** First press ▢ to return to the TV mode, then repeat steps 1 to 3.	

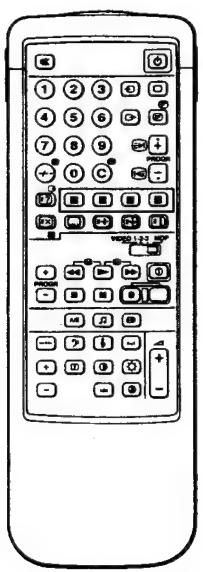
Note
If the signal of the TV channel is weak, teletext errors may often occur.

How to Use the Advanced Features of Teletext

How to	Action	Result (On-screen display)
Request the index page.	Press ⊡ (INDEX).	 The index page appears.
Request the subtitle page (p888).	Press ▢.	The subtitle page is displayed (p888).
Access the next or preceding page.	Press ⊡ (PAGE +) or ⊡ (PAGE −).	 The next or preceding page appears.

How to	Action	Result
Superimpose the teletext display on the TV programme.	Press ▤ once if you are in text mode, or press ▤ twice if in TV mode. To return to the normal teletext display press ▤ again.	 The teletext displays are superimposed on the TV programmes.
Prevent a teletext page from being updated or changed.	Press ⊡ (HOLD). To resume normal teletext reception, press ▤ (TEXT/MIX).	 The HOLD symbol (⊡) appears on the screen and the chosen sub-page is held until you cancel.
Enlarge the teletext display.	Press ⊡ once to enlarge the upper half. Press twice to enlarge the lower half. Press again to restore the normal display.	 The upper half is enlarged.
Reveal concealed information (e.g. answers to a quiz).	Press ⊡ (REVEAL). Press again to conceal the information.	 The information is revealed.
Watch the TV programme while waiting for a requested page to be displayed.	**1.** Request a new page.	The numbers are entered.
	2. Press ⊡ (TEXT CL).	The TV program is displayed, and the requested page number and other teletext data appear at the top of the screen.
	3. When the requested page has been captured, the page number remains and the other data disappears.	
	4. Press ▤ to view this page.	The requested page is displayed.

Some of the features may not be available depending on the Teletext service.



— 10 —

How to use the FASTEXT Feature

FASTEXT feature allows you to access pages quickly with one key operation. When a FASTEXT page is broadcast, a colour coded menu appears at the bottom of the screen. Each coloured prompt corresponds to the coloured buttons on either side of your Remote Commander.

Operation

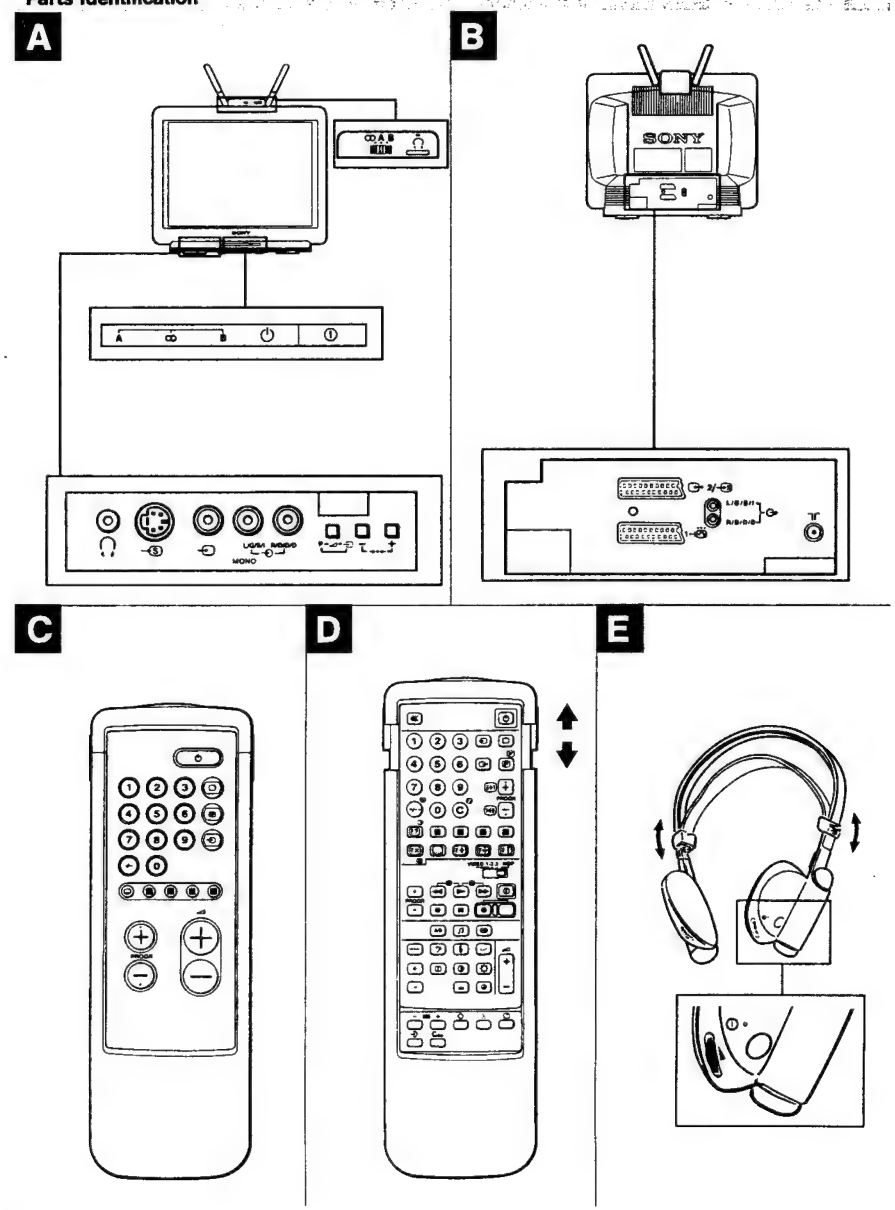
Action	Result
Press one of the coloured buttons which corresponds to the coloured prompt on the teletext.	The selected teletext page appears.

Note
Correct FASTEXT operation depends on the necessary signals sent from the TV station.

Summary Note
A brief explanation of all TV and Commander functions can be referred to on page 21.

1-7. ADDITIONAL INFORMATION

Parts Identification



This section briefly describes the buttons and controls on the TV set and on the Remote Commander. For more information, refer to the pages given next to each description.

A TV set – Front

Sign	Name	Refer to page
⏼	Main power switch	4
⏻	Standby indicator	4
A-ↀ-B	NICAM indicators	10, 11
🎧	Headphones jack (stereo minijack)	17
S ⊕ ⊙	Input jacks (S-video/ video/audio)	17
P→◿→⊕	Function selector (Programme/ volume/input)	9, 18
– +	Adjustment buttons for function selector	9, 18
🎧	Transmitter power switch	12
ↀ-A-B	Audio mode selector	12

B TV set – Rear

Sign	Name	Refer to page
⊕2/S	21-pin Euro-AV connector (S-video/video input, TV/video output)	17
1 ⊕	21-pin Euro-AV connector (RGB/ video input, TV output	17
⊖	Audio output jacks (phono jacks)	17
╥	Aerial terminal (IEC type)	3

C Remote Commander – simple side

Sign	Name	Refer to page
⊕	Input mode selector	18
⊜	Teletext button	14
■■■■	Fastext buttons	16
▢	TV mode selector	4
⏻	Standby button	4
1,2,3,4,5, 6,7,8,9, and 0	Number buttons	9
-/--	Double-digit entering button	9
◿+/–	Volume control button	9
PROGR +/–	Programme selector	9

D Remote Commander – full function side

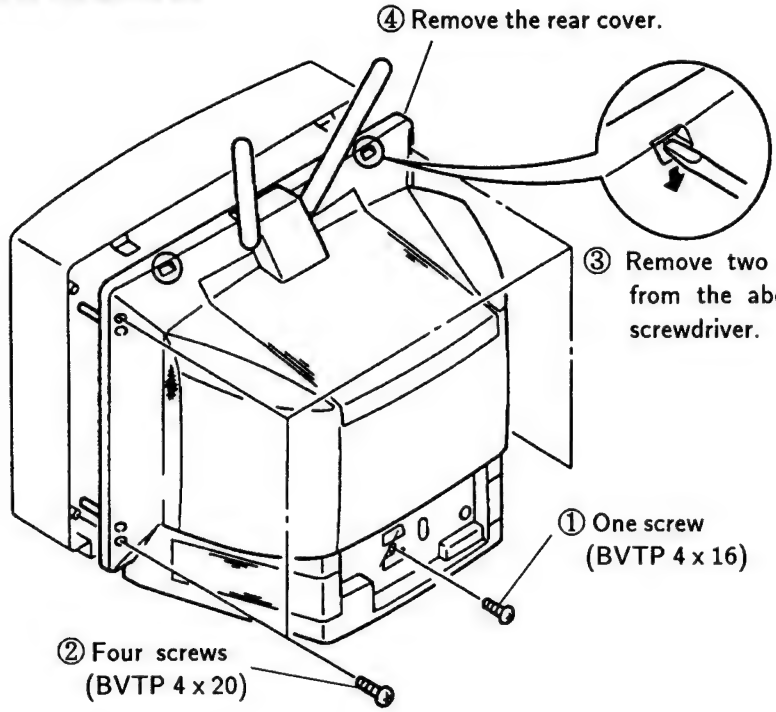
Sign	Name	Refer to page
🔇	Mute on/off button	10
⏻	Standby button	4
1,2,3,4,5, 6,7,8,9, and 0	Number buttons	9
⊕	Input mode selector	18
▢	TV power on/TV mode selector button	4
⊖	Output mode selector	18
⊜	Teletext button	14
♫	Music button	10
A/B	Selector for NICAM	11
-/--	Double-digit entering button	9
C	Direct channel entering button	6, 7
⊛	Space sound button	10
◎	Request time display	10
[teletext buttons]	Teletext operation buttons	14, 15
■■■■	Fastext buttons	.16
⊕	On-screen display button	10
→•←	Picture and sound adjustment reset button	10
◿+/–	Volume control	9
PROGR +/–	Programme selector	9
◑ ☼ ◕ ◿ ♪ +/–	Picture and sound controls	10
VIDEO 1/2/3, MDP	Video equipment selector	19
◀◀ ▶ ▶▶ ■ ❚❚ ●	Video equipment operation buttons	19
Coo	Programme number clear button	8
⇾	Channel preset button	5 ... 8
– ⇔ +	Tuning buttons	5
◇	Channel store button	5 ... 8
▢	Station label button	7

E Headphones

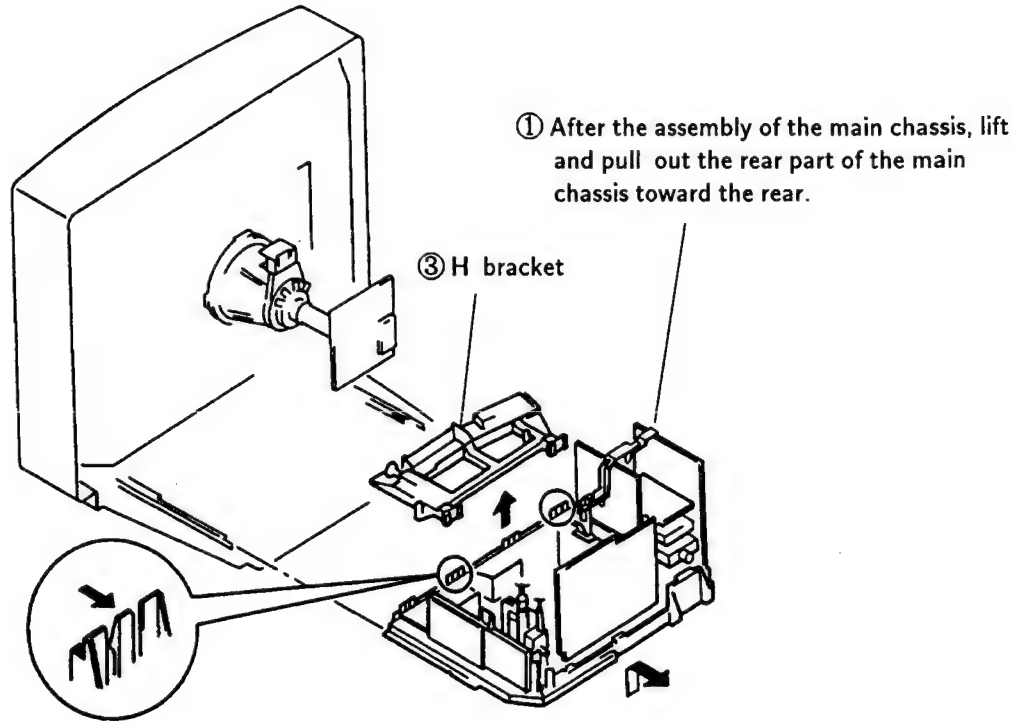
Sign	Name	Refer to page
⏼	Power switch	12
◿	Volume control	12

SECTION 2
DISASSEMBLY

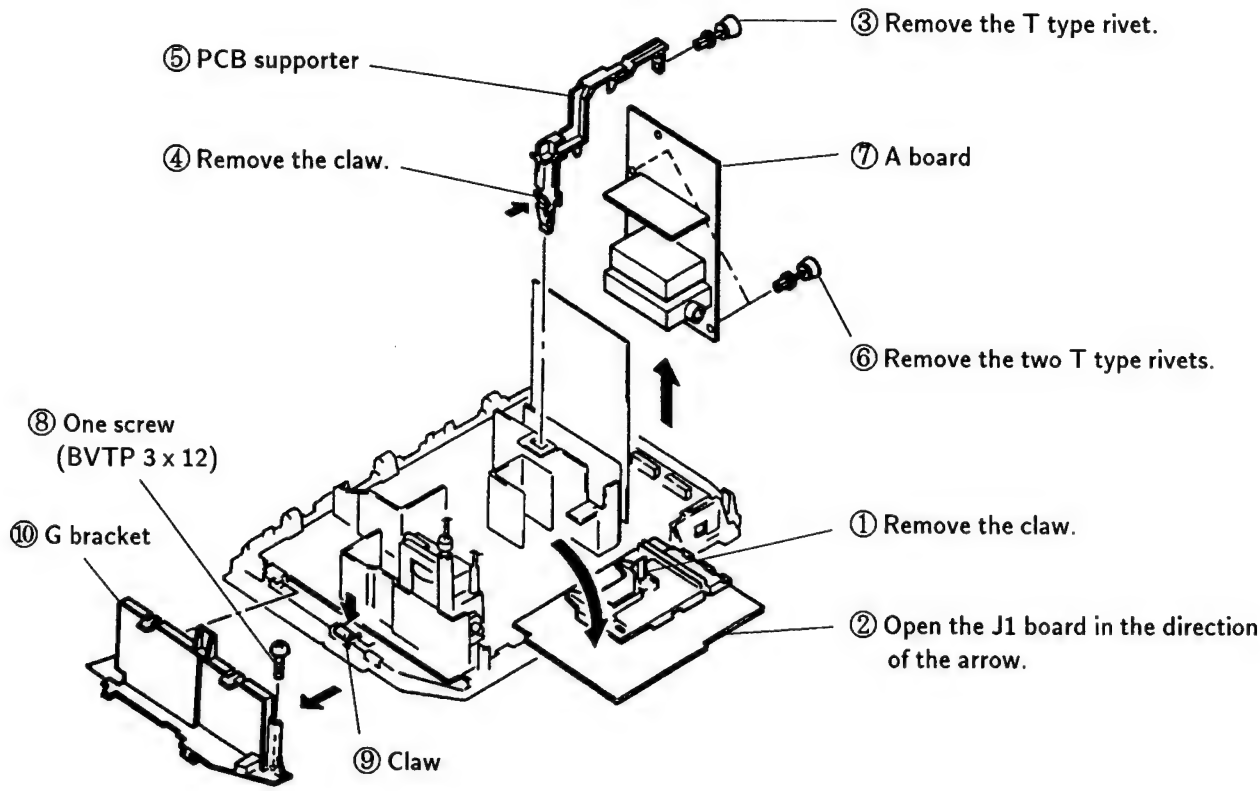
2-1. REAR COVER REMOVAL



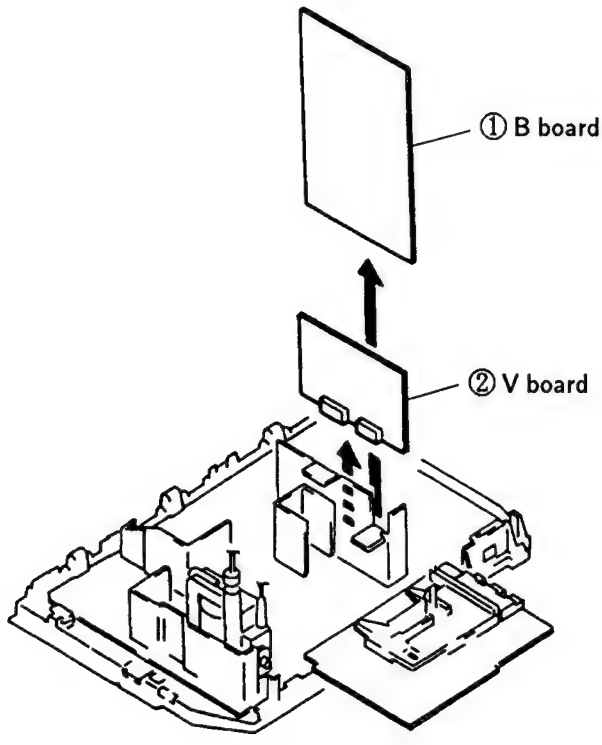
2-2. CHASSIS ASSEMBLY REMOVAL



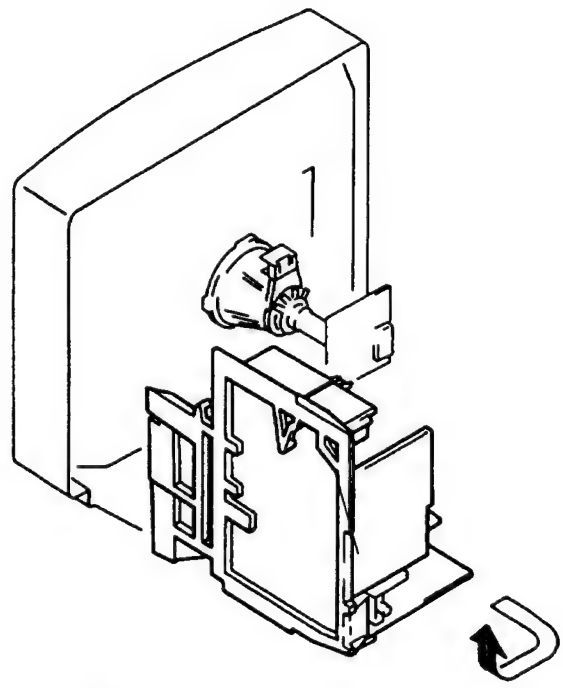
2-3. A, A1, J1 BOARDS AND G BRACKET REMOVAL



2-4. B AND V BOARDS REMOVAL

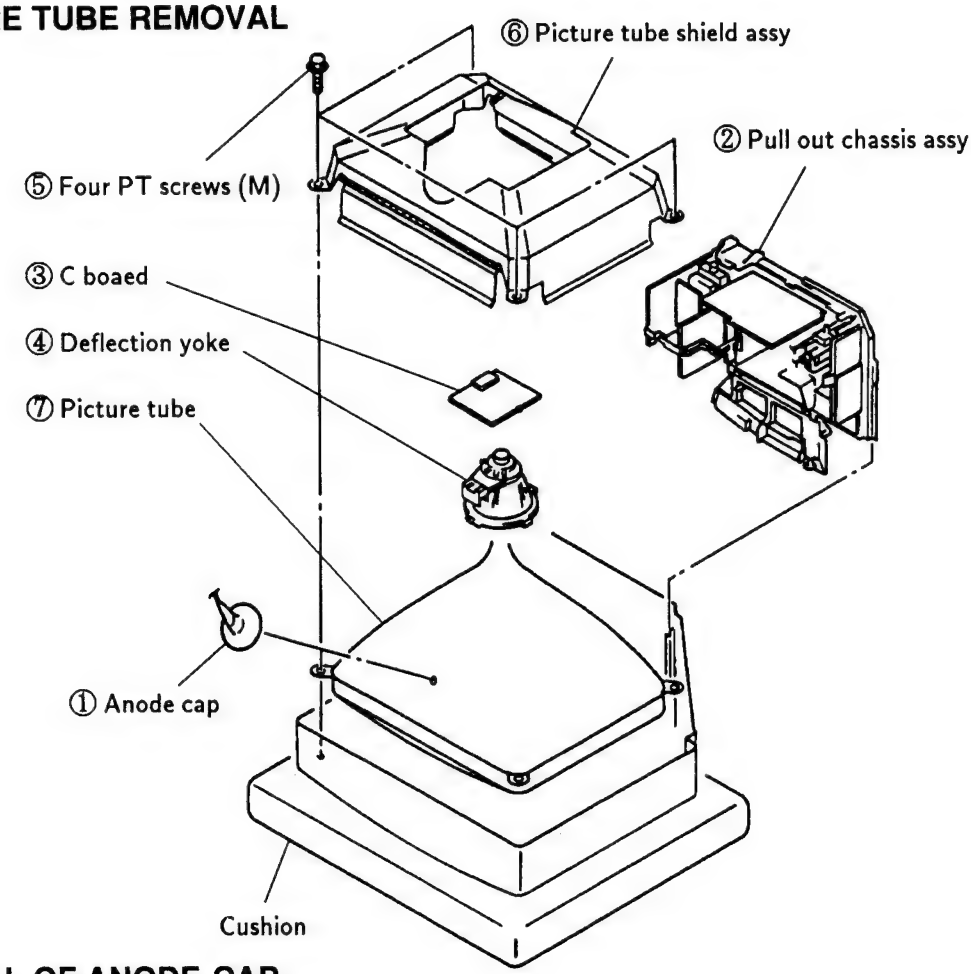


2-5. SERVICE POSITION



① Remove main chassis assembly in the direction of the arrow.

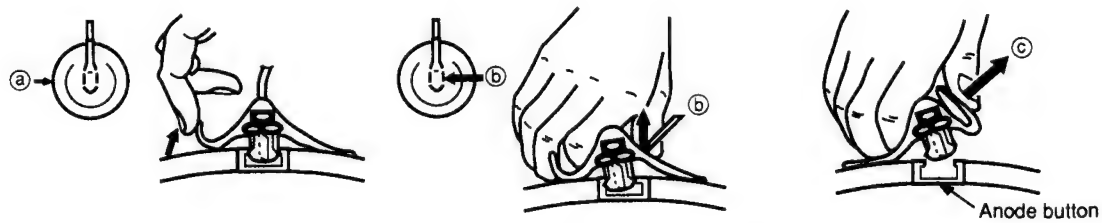
2-6. PICTURE TUBE REMOVAL



- **REMOVAL OF ANODE-CAP**

Note: Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield, or carbon painted on the CRT, after removing the anode.

- **REMOVING PROCEDURES**



① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.

② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.

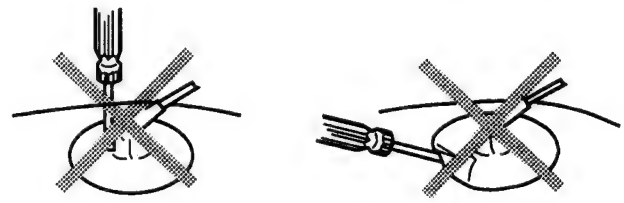
③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of arrow ⓒ.

- **HOW TO HANDLE AN ANODE-CAP**

① Don't hurt the surface of anode-caps with sharped material !

② Don't press the rubber hardly not to hurt inside of anode-caps !
A metal fitting called as shatter-hook terminal is built in the rubber.

③ Don't turn the foot of rubber over hardly !
The shatter-hook terminal will stick out or hurt the rubber.



SECTION 3
SET-UP ADJUSTMENTS

- When complete readjustment is necessary or a new picture tube is installed, carry out the following adjustments.
- Unless there is specific instruction to the contrary, carry out these adjustments with the rated power supply.
- Unless there is specific instruction to the contrary, set the controls and switches this way :
  - ◑ Contrast ·····80%
    (or remote control normal)
  - ☼ Brightness ·····50%

- Carry out the following adjustments in this order:
  1. Beam landing
  2. Convergence
  3. Focus
  4. White balance

Note : Testing equipment required
1. Color bar/pattern generator
2. Degausser
3. DC power supply
4. Digital multimeter
5. Oscilloscope

Preparations :
- In order to reduce the influence of geomagnetism on the set's picture tube face it east or west.
- Switch on the set's power and degauss with the degausser.

3-1. BEAM LANDING

1. Input the white signal with the pattern generator.
   Contrast
   Bightness } normal
2. Position neck ass'y as shown in Fig 3-2.
3. Set the pattern generator raster signal to red.
4. Move the deflection yoke to the rear and adjust with the purity control so that the red is at the center and the blue and the green take up equally sized areas on each side.
   (See Figures 3-1 through 3-3.)
5. Move the deflection yoke forward and adjust so that entire screen is red. (See Figure 3-1.)
6. Switch the raster signal to blue, then to green and verify the condition.
7. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws.
8. If the beam does not land correctly in all the corners, use a magnet to adjust it.
   (See Figure 3-4.)

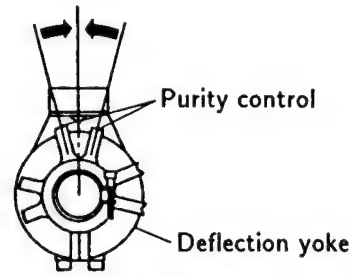


Fig.3-2

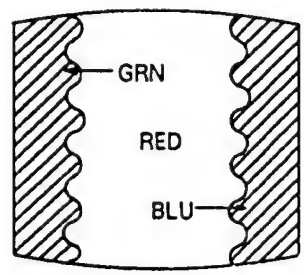


Fig. 3-3

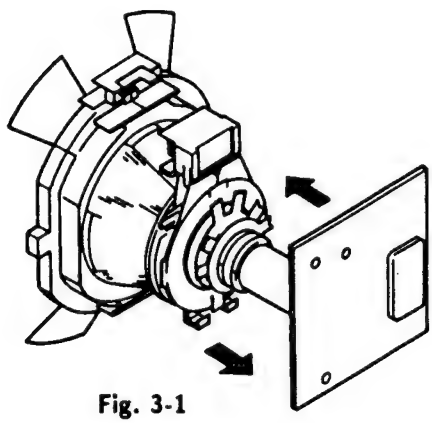


Fig. 3-1

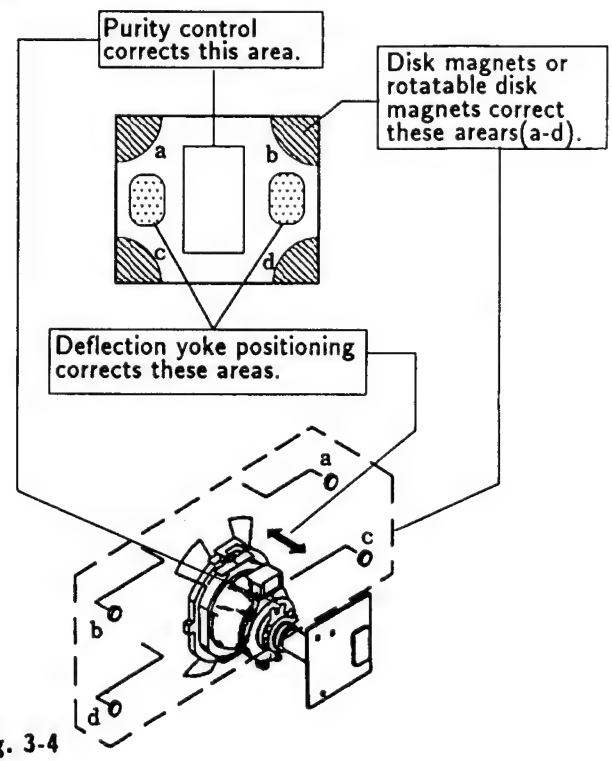


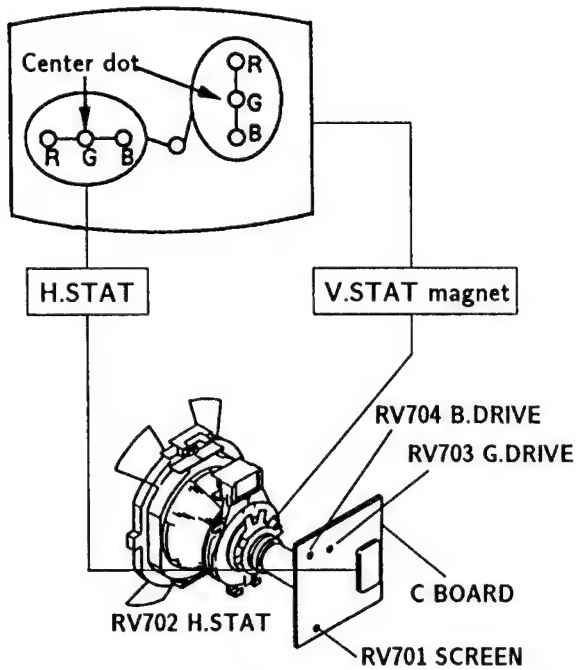
Fig. 3-4

3-2. CONVERGENCE

Preparations :

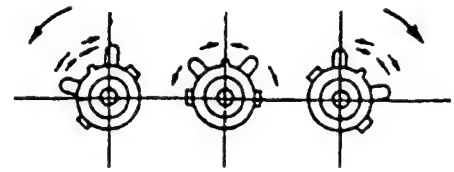
- Before starting this adjustment, adjust the focus, horizontal size, and vertical size.
- Minimize the brightness setting.
- Provide dot pattern.

(1) Horizontal and vertical static convergence

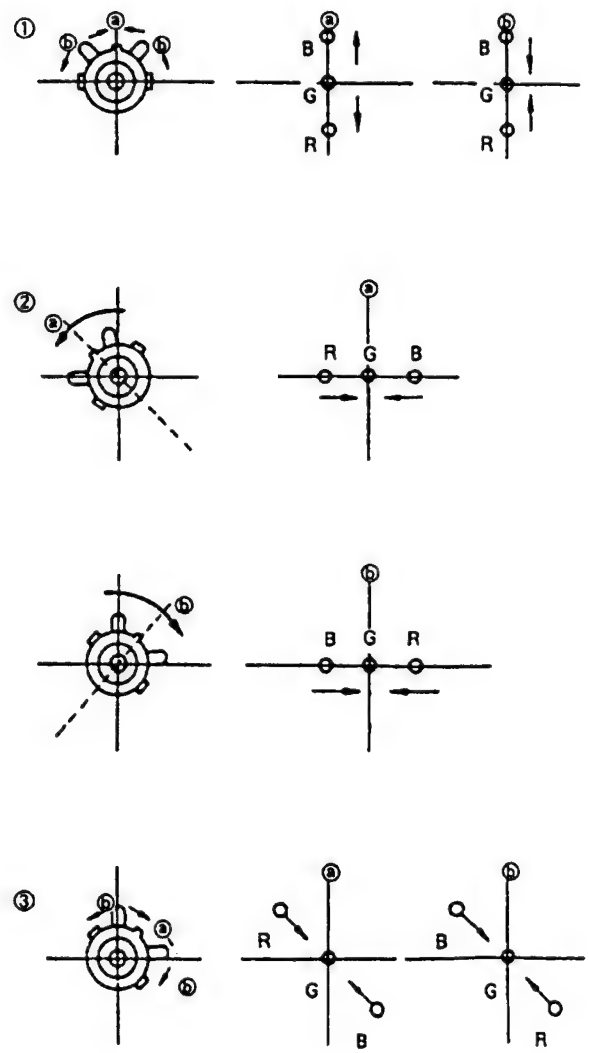


1. (Moving horizontally), adjust the H.STAT control so that the red, green, and blue points are on top of each other at the center of the screen.
2. (Moving vertically), adjust the V.STAT magnet so that the red, green, and blue points are on top of each other at the center of the screen.
3. If the H.STAT variable resistor cannot bring the red, green, and blue points together at the center of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V. STAT magnet in the manner given below.
   (In this case, the H.STAT variable resistor and the V.STAT magnet influence each other)

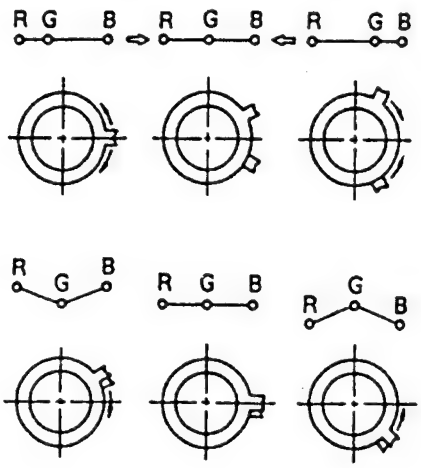
- Tilt the V.STAT magnet and adjust the static convergence by opening or closing the V.STAT magnet.



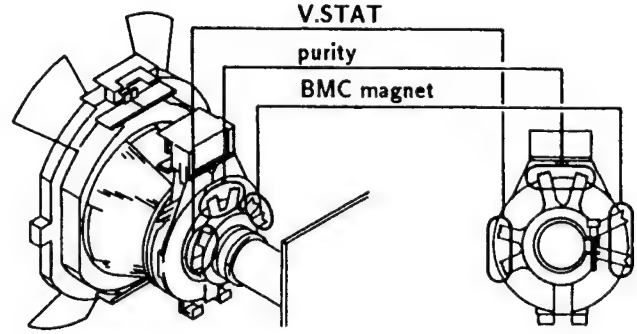
4. If the V.STAT magnet is moved in the direction of the ⓐ and ⓑ arrows, the red, green, and blue points move as shown below.



- Operation of BMC (Hexapole) Magnet



- The respective dot positions resulting from moving each magnet interact, so be sure to perform adjustment while tracking.
  Use the H.STAT VR to adjust the red, green, and blue dots so they coincide at the center of screen (by moving the dots in the horizontal direction).

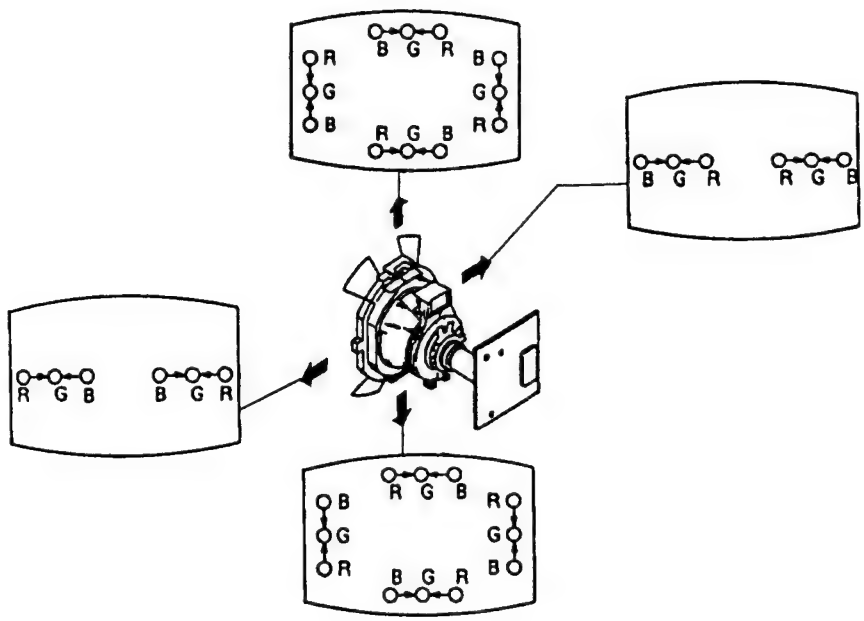


(2) Dynamic Convergence Adjustment

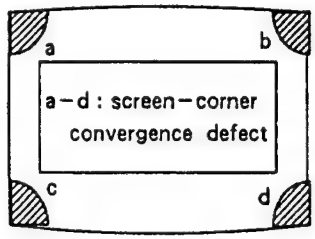
Preparations :

Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence.

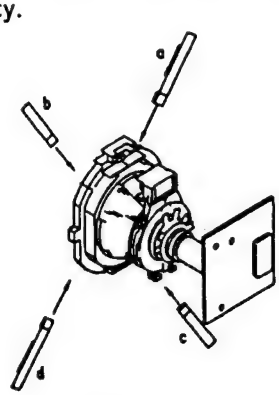
1. Slightly loosen the deflection yoke screws.
2. Remove the deflection yoke spacer.
3. Move the deflection yoke as shown in the figure below and optimize the convergence.
4. Tighten the deflection yoke screws.
5. Install the defelection yoke spacer.



(3) Screen corner convergence



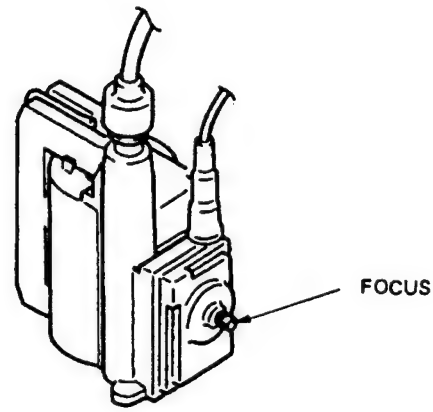
Install the permalloy assembly for the section with faulty.



Permalloy

3-3. FOCUS

Adjust the focus to optimize the screen.



3-4. WHITE BALANCE

[Screen G2 setting]

1. Input the dot signal from the pattern generator.
2. Set the picture brightness control to its lowest level.
3. Apply 170V DC to the R, G, and B cathodes with an external power supply.
4. While watching the picture, adjust G2 control RV701 (Screen) to the point just before the return lines disappear.

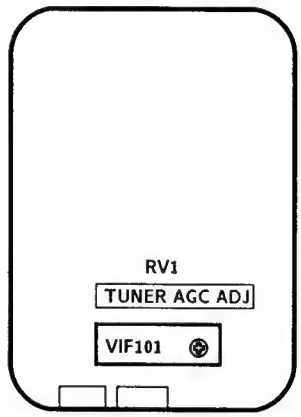
[White balance adjustment]

1. Input an all-white signal from the pattern generator.
2. Set the picture brightness and color controls to their normal levels.
3. Use the RV704 (B Drive) and RV703 (G Drive) to adjust white balance.

In the adjustments below, have the picture color and brightness settings at their normal levels unless there is a specific instruction to the contrary.

SECTION 4
CIRCUIT ADJUSTMENTS

4-1. A BOARD ADJUSTMENTS

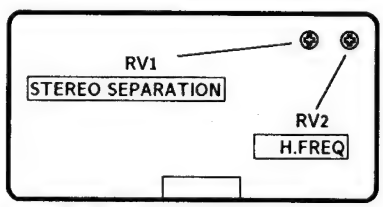


A BOARD (COMPONENT SIDE)

TUNER AGC ADJUSTMENT (AGC VR)

1. Align with an appropriate signal between stations.
2. Adjust AGC VR so that snow noise and cross modulation just disappear from the picture.

IFG5.5S SIF



IFG5.5S SIF -component side-

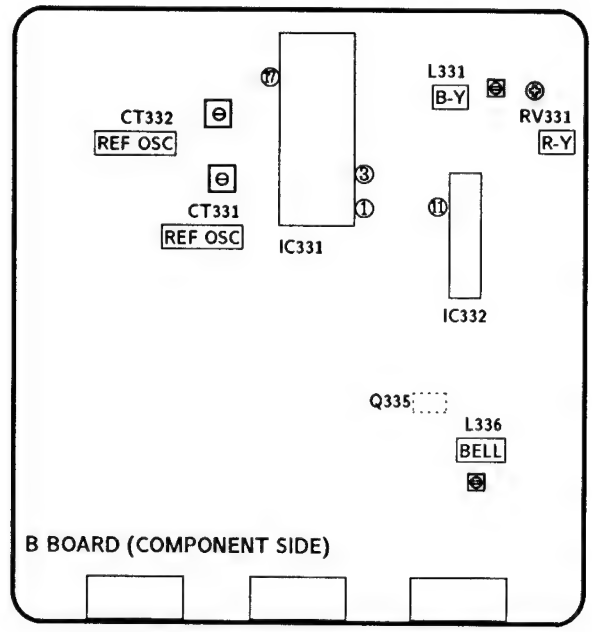
STEREO SEPALATION ADJUSTMENT (RV1)

1. Input stereo signals. (L-CH 400Hz, R-CH 1KHz)
2. Check the stereo indicator.
3. Connect on oscilloscope to pin⑧ (CH1) of CN1 through band pass filter of 1KHz
4. Adjust RV1 so that 1KHz voltage goes down to the minmum.

H FREQ (RV2)

1. Input a PAL COLOR BAR signal, then connect a jumper between pin⑫ IC4 and GND.
2. Connect a frequency counter to pin④ IFG5.5S (HP) of CN1 through a probe of 10 : 1.
3. Adjust RV2 (H.FREQ) 15.625±50Hz.
4. After adjustment, remove the jamper.

4-2. B BOARD ADJUSTMENTS



B BOARD (COMPONENT SIDE)

REFERENCE OSCILLATOR ADJUSTMENT (CT332 8.8MHz)

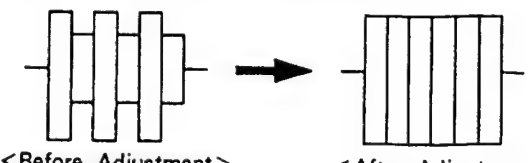
1. Input a PAL color bar signal.
2. Ground pin ⑰ of the IC331.
3. Adjust CT332 to obtain synchronization.

REFERENCE OSCILLATOR ADJUSTMENT (CT331 7.16MHz)

1. Input an NTSC color bar signal.
2. Ground pin ⑰ of IC331.
3. Adjust the CT331 to obtain synchronization.
4. Remove the jumper grounding pin ⑰ of IC331.

BELL FILTER ADJUSTMENT (L336)

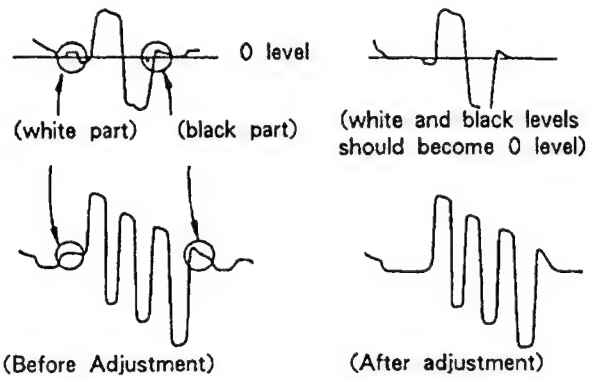
1. Input a SECAM color bar signal.
2. Connect the oscilloscope to the emitter of Q335.
3. Adjust L336 so that the waveform is flat.



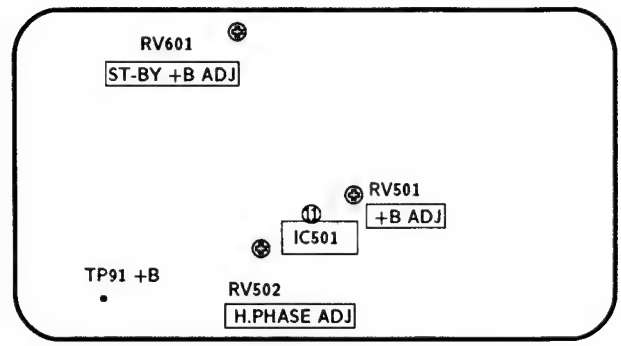
<Before Adjustment> <After Adjustment>

DISCRIMINATION ADJUSTMENTS (RV331 and L331)

1. Input a SECAM color bar signal.
2. Connect the oscilloscope to pin ① of IC331.
3. Adjust RV331 until the white and black sections of the waveform at pin ① are at the 0 level.
   Connect the oscilloscope to pin ③ of IC331.
4. Adjust L331 until the white and black sections of
5. the waveform at pin ③ are at the 0 level.



4-3. D BOARD ADJUSTMENTS



D BOARD (COMPONENT SIDE)

+B ADJUSTMENT (RV501)

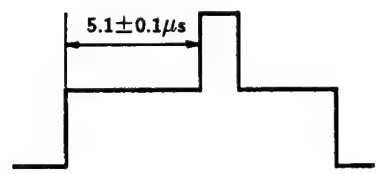
1. Connect the digital multimeter to TP91.
2. Adjust RV501 to obtain 135±0.2V.

ST-BY +B ADJUSTMENT (RV601)

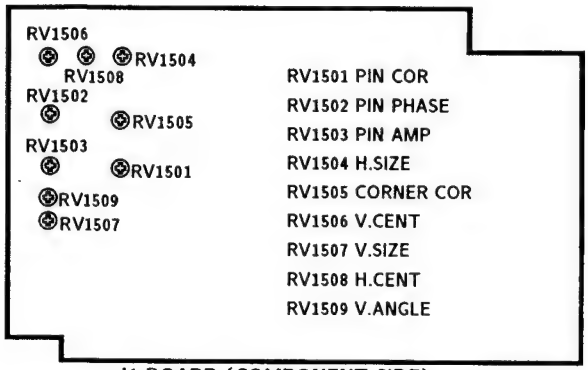
1. Put the system into ⏻ standby mode (remote commander).
2. Connect the digital multimeter to TP91.
3. Adjust RV601 to obtain 135±3V.
4. Take the system out of ⏻ standby mode (remote commander).

H.PHASE ADJUSTMENT (RV502)

1. Input a PAL color bar signal.
2. Set the picture and brightness controls to their normal levels.
3. Set RV1508 (H.CENT) to its mechanical center.
4. Connect the oscilloscope to pin ⑪ (SCP) of IC 501.
5. Rotate RV502 to adjust to 5.1±0.1μs.

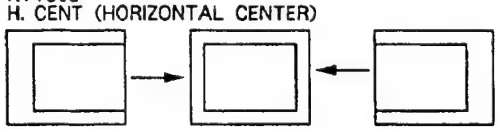


4-4. J1 BOARD ADJUSTMENTS

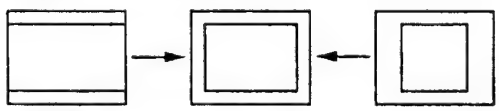


J1 BOARD (COMPONENT SIDE)

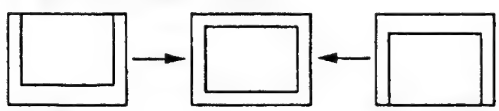
RV1508
H. CENT (HORIZONTAL CENTER)



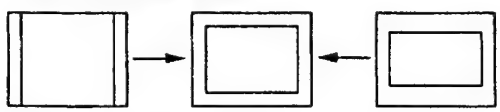
RV1504
H. SIZE (HORIZONTAL SIZE)



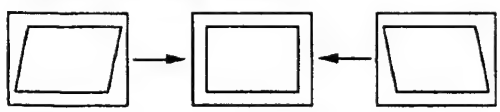
RV1506
V. CENT (VERTICAL CENTER)



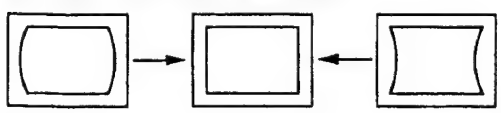
RV1507
V. SIZE (VERTICAL SIZE)



RV1509
V. ANGLE (VERTICAL ANGLE)

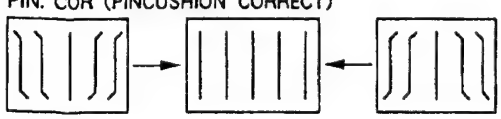


RV1503
PIN AMP (PINCUSHION AMPLIFIER)

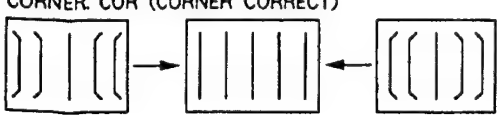


RV1502
PIN PHASE (PINCUSHION PHASE)

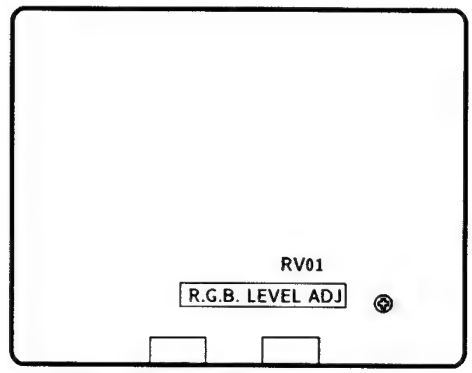
RV1501
PIN. COR (PINCUSHION CORRECT)



RV1505
CORNER COR (CORNER CORRECT)



4-5. V BOARD ADJUSTMENT



V BOARD (COMPONENT SIDE)

RGB LEVEL ADJUSTMENT (RV01)

1. Maximize the picture setting.
2. Adjust RV01 so that the RGB output is 0.75V.

4-6. SECONDARY ADJUSTMENTS

SUB BRIGHTNESS ADJUSTMENT

1. Set the system to receive a test pattern.
2. Press → • ← on the remote commander to put the system into normal mode.
3. Switch off the power.
4. While depressing the adjusting buttons + and − simultaneusly, turn on the power. (SUB mode is obtained)
5. Minimize the ◑ contrast setting.
6. Adjust the ☼ brightness control so that the gray scale 0 IRE section is cut off completely and the 20 IRE section is barely glowing.
7. Depress the ◇ (store) button of the remote commander.
   (SUB mode is released)

   If there is no test color pattern

1. Set the system to receive a color pattern.
2. Press → • ← on the remote commander to put the system into normal mode.
   Set the ◑ color to its normal state.

3-5. Steps are the same as above.

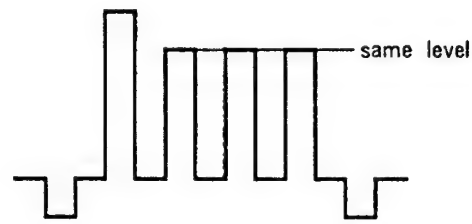
6. Since 20 IRE is nearly blue, adjust the ☼ brightness control so that the blue barely glows.

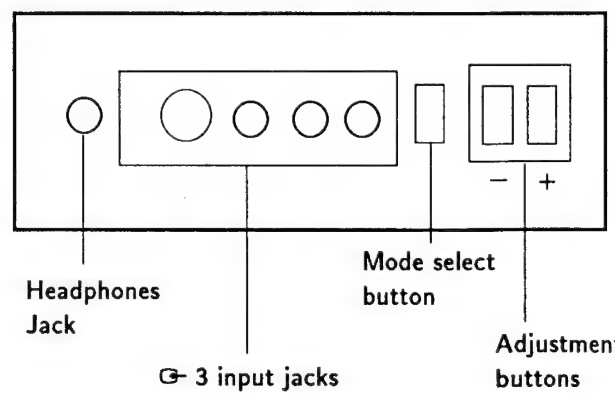
7. Same as step 7 above.

8. Press → • ← on the remote commander to put the system into normal mode.

SUB COLOR ADJUSTMENT

1. Set the system to receive color bars.
2. Press → • ← on the remote commander to put the system into normal mode.
3. Cut off the power.
4. While depressing the adjustment buttons + and − simultaneusly, turn on the power. (SUB mode is obtained).
5. Adjust the color control so that the B out waveform (pin ⑤ of C board connector CNC72) is as shown in the figure below.
6. Depress the ◇ (store) button of the remote commander. (SUB mode is released)

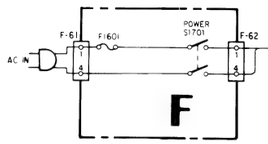


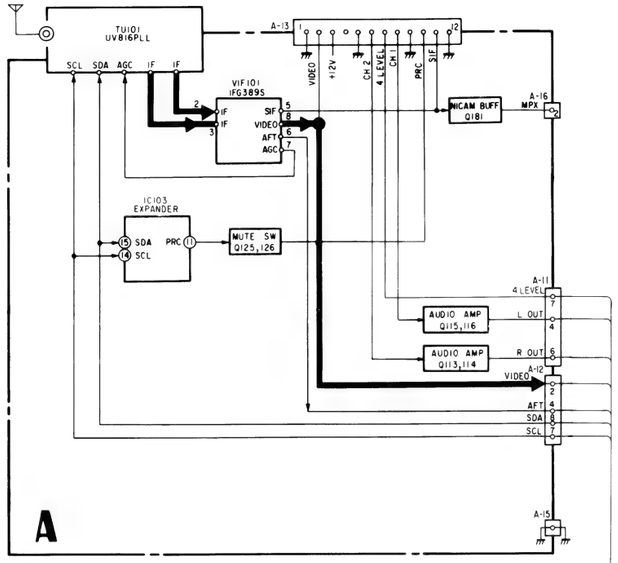


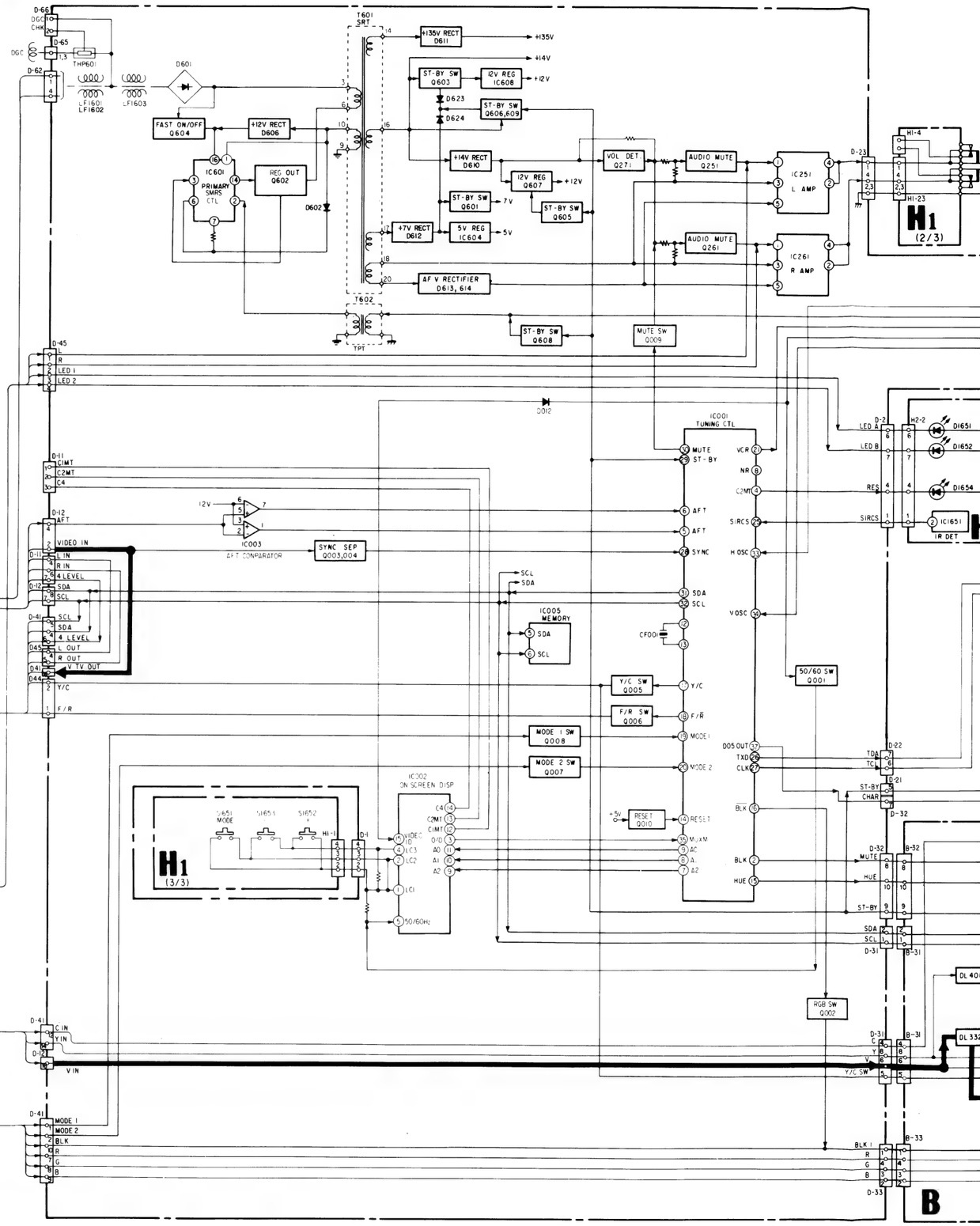
KV-H2511D
MDR-IF310/RM-816

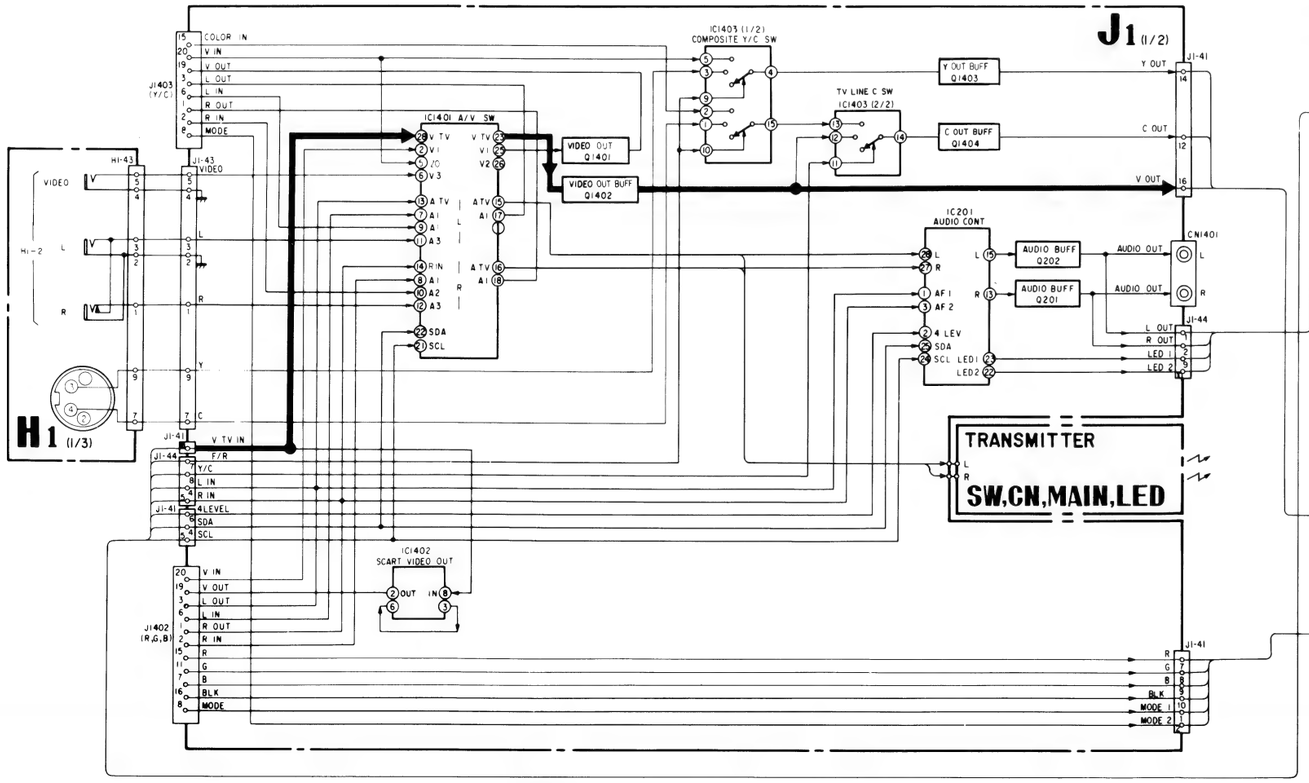
SECTION 5
DIAGRAMS

5-1. BLOCK DIAGRAM

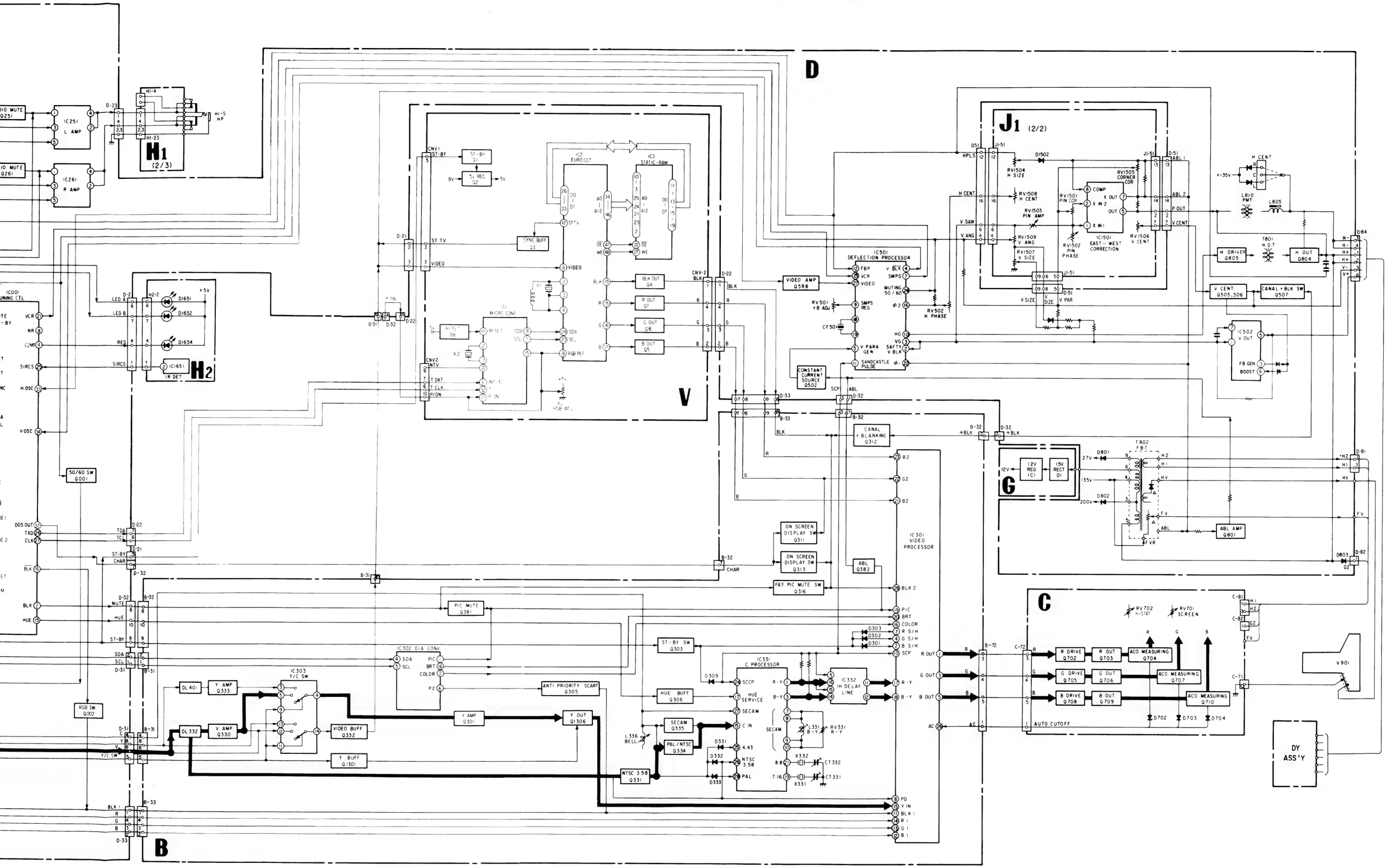






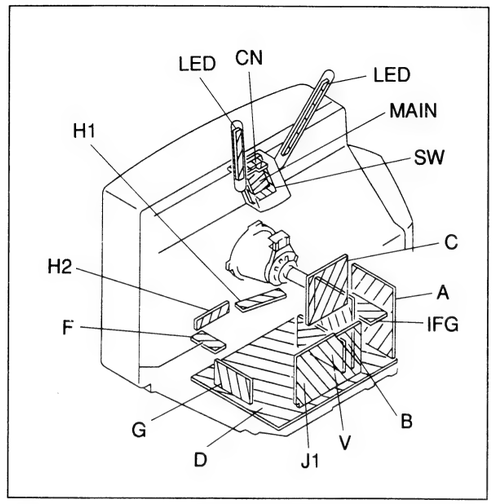


KV-H2511D
MDR-IF310/RM-816



KV-H2511D
MDR-IF310/RM-816

5-2. CIRCUIT BOARDS LOCATION



Note:
Components identified by shading and marked ⚠ are critical for safety. Replace only with the part number specified.

Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NON-FLAMMABLE CARBON
	: FUSE	NON-FLAMMABLE FUSIBLE
	: RS	NON-FLAMMABLE METALOXIDE
	: RB	NON-FLAMMABLE CEMENT
	: RW	NON-FLAMMABLE WIREWOUND
	: ※	VARIABLE RESISTOR
COIL	: LF-8L	MINIATURE INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

5-3. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note:

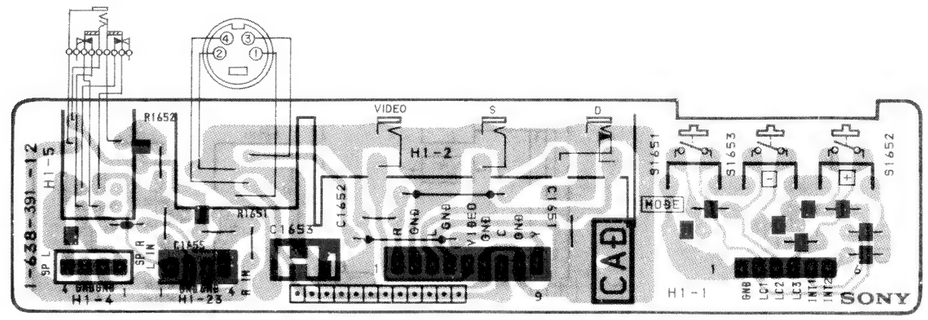
- All capacitors are in μF unless otherwise stated (p=pF). Working voltage of 50V or less are not indicated, except for electrolytics.
- Resistors which do not hane a power rating value shown are as follows.

  Pitch: 5 mm
  Power rating: 1/4W

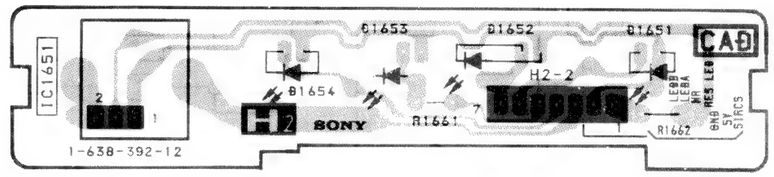
  Chip resistors are 1/10W.
- All resistor values are in Ohms. kΩ=1000Ω, MΩ=1000kΩ.
- : nonflammable resistor.
- : fusible resistor.
- △: internal component.
- : panel outline or servicing adjustment.
- All variable and adjustable resistors have characteristic curve B. unless otherwise noted.
- All voltages shown are in Volts.
- Readings were taken with a 10 MΩ digital multimeter.
- Readings were taken with a colour-bar signal input.
- Voltage variations may be occur to normal production tolerance.
- : Voltage supply rails.
- : Signal path.

H1 [CONTROL SW, AV INPUT, HEADPHONE] **H2** [SIRCS RECEIVER, INDICATOR] **F** [AC IN, POWER SW] **A** [TUNER,

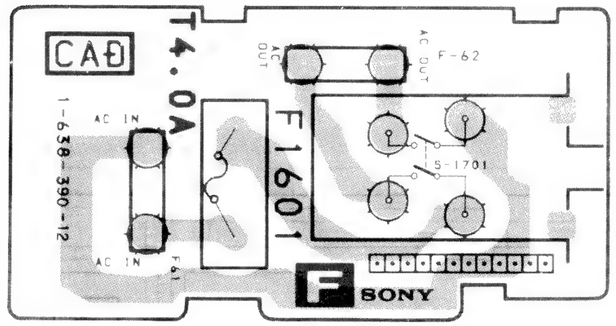
— H1 Board —



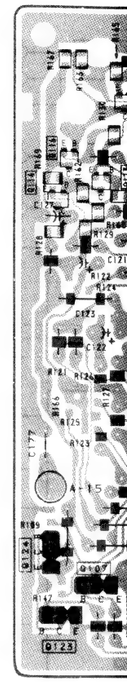
— H2 Board —

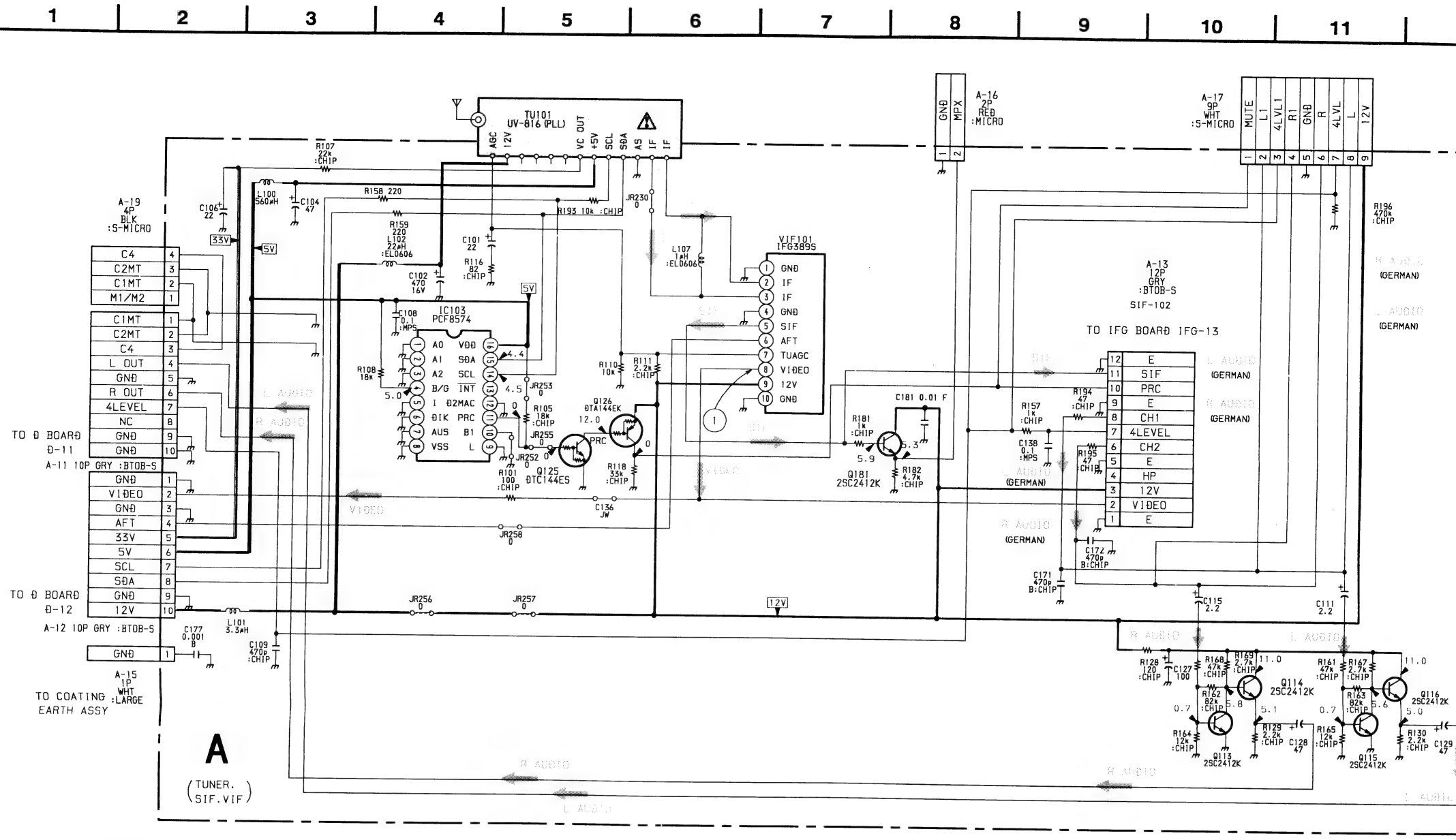


— F Board —



— A Board —



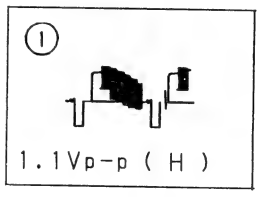


B-SS4112<AEP>-

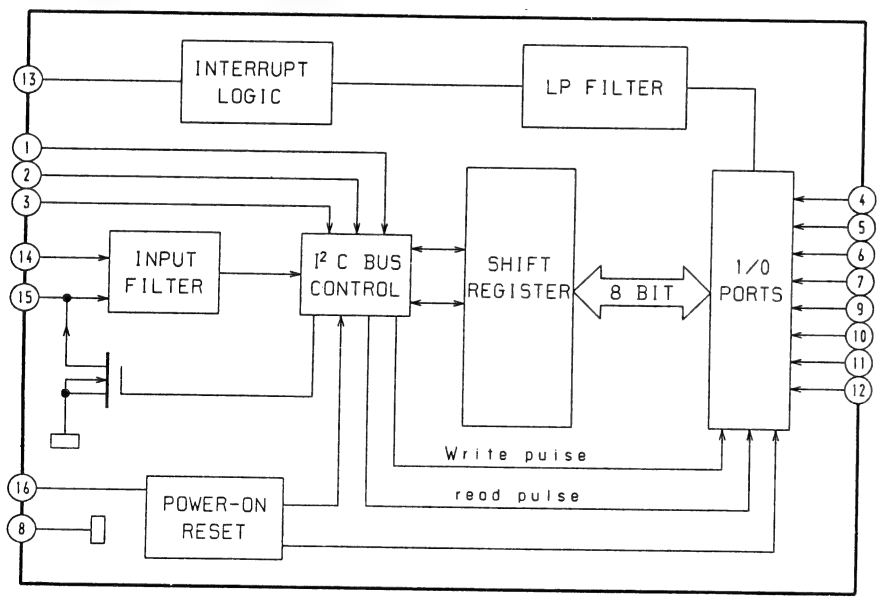
— A Board —

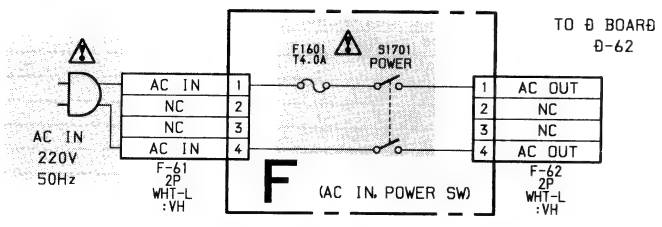
IC103	PCF8574	EXPANΘER
Q113	2SC2412K	AUΘIO AMP
Q114	2SC2412K	AUΘIO AMP
Q115	2SC2412K	AUΘIO AMP
Q116	2SC2412K	AUΘIO AMP
Q125	ΘTC144ES	MUTE SW
Q126	ΘTA144EK	MUTE SW
Q181	2SC2412K	NICAM BUFFER

— A Board —

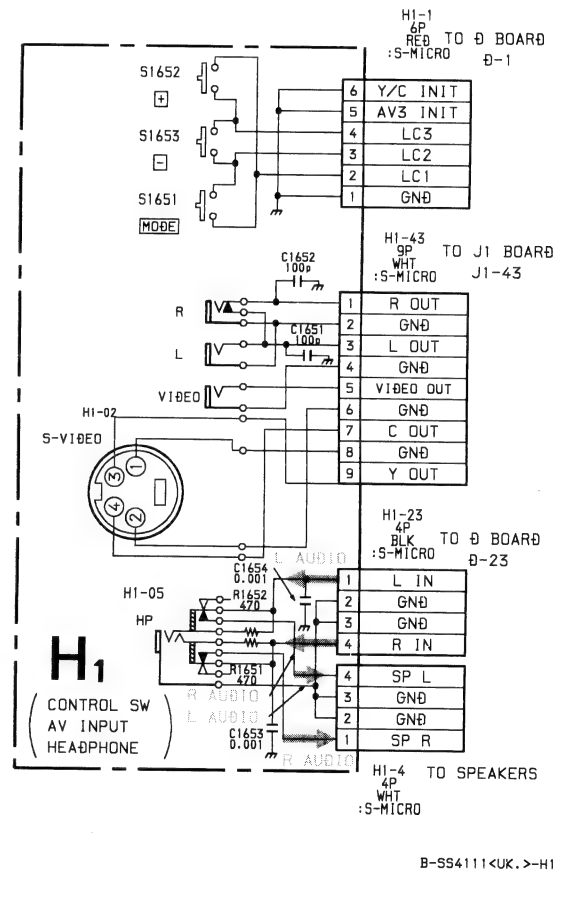


A BOARD IC103 PCF8574

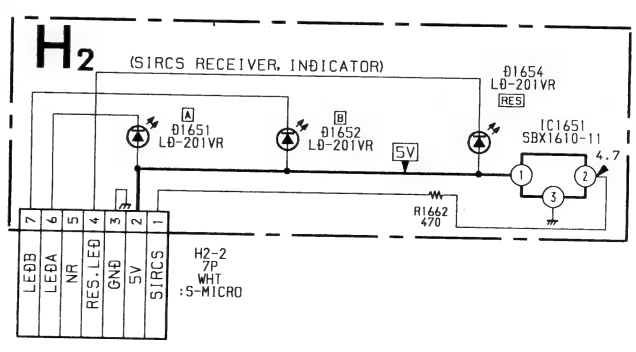




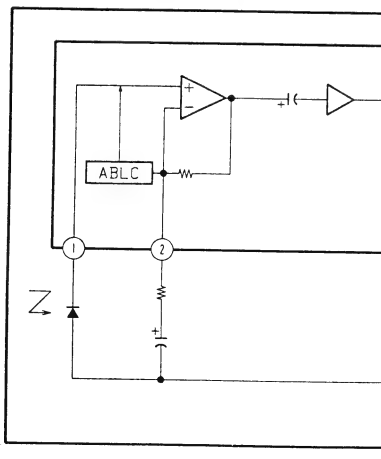
B-SS4112<AEP>-F..



B-SS4111<UK.>-H1



H2 BOARD IC1651 SBX1610-11

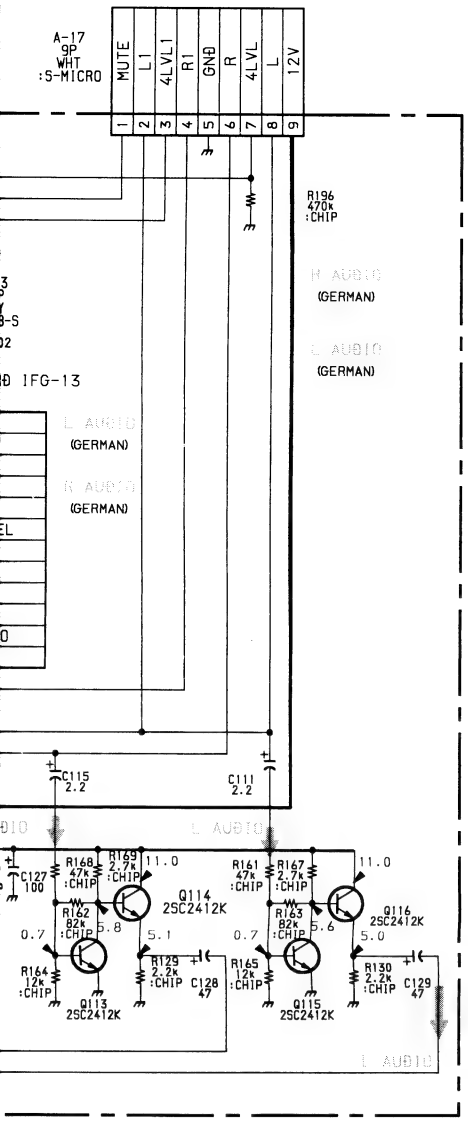


— H2 Board —

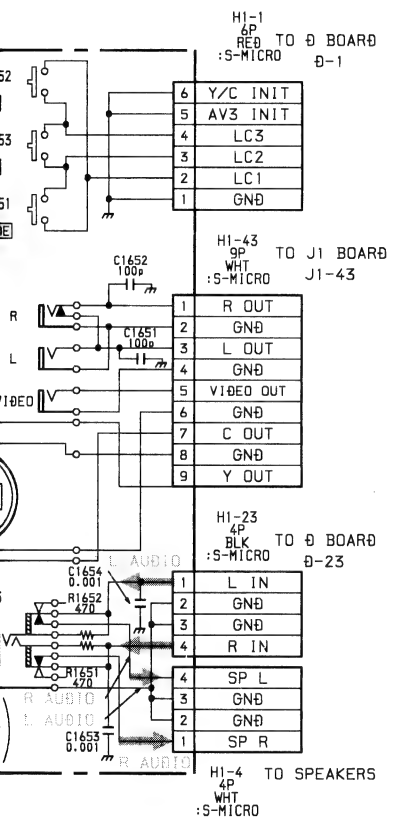
IC1651	SBX1610-11	INFRAREΘ RECIVER
Θ1651	LΘ-201VR	AUΘIO CHANNEL A INΘICATOR
Θ1652	LΘ-201VR	AUΘIO CHANNEL B INΘICATOR
Θ1654	LΘ-201VR	RESET INΘICATOR

J1

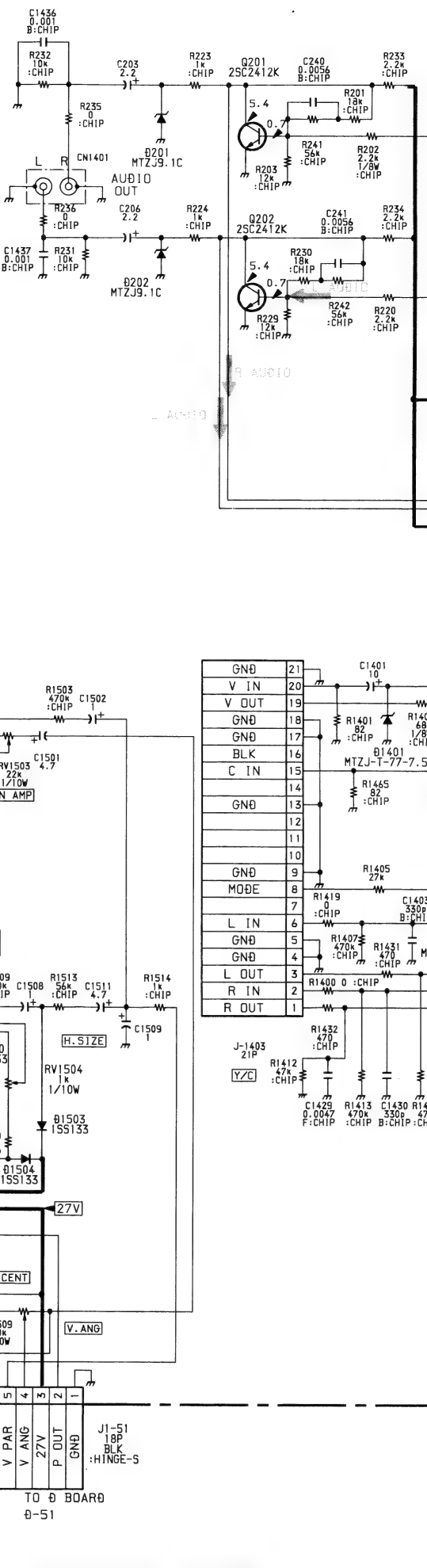
(AUDIO CONTROL
AV INPUT, Y/C INPUT,
SCART VIDEO OUT,
EAST-WEST CORRECTION)



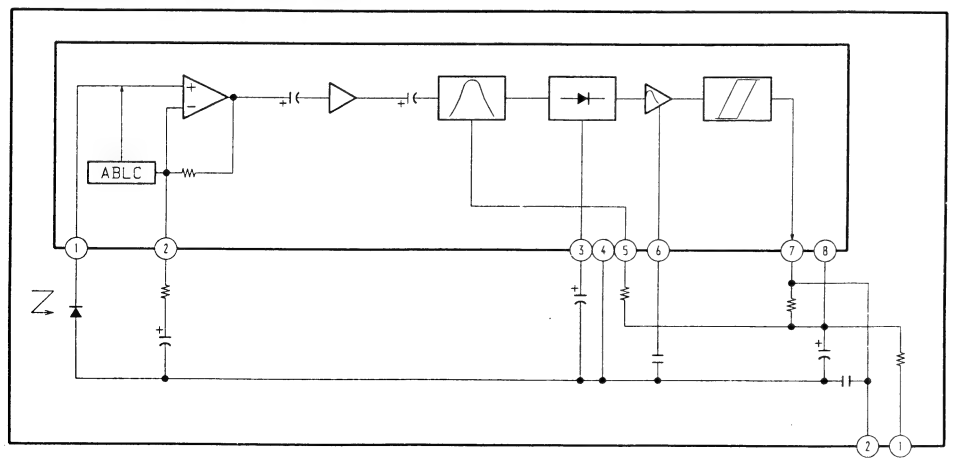
B-SS4112<AEP>-A..



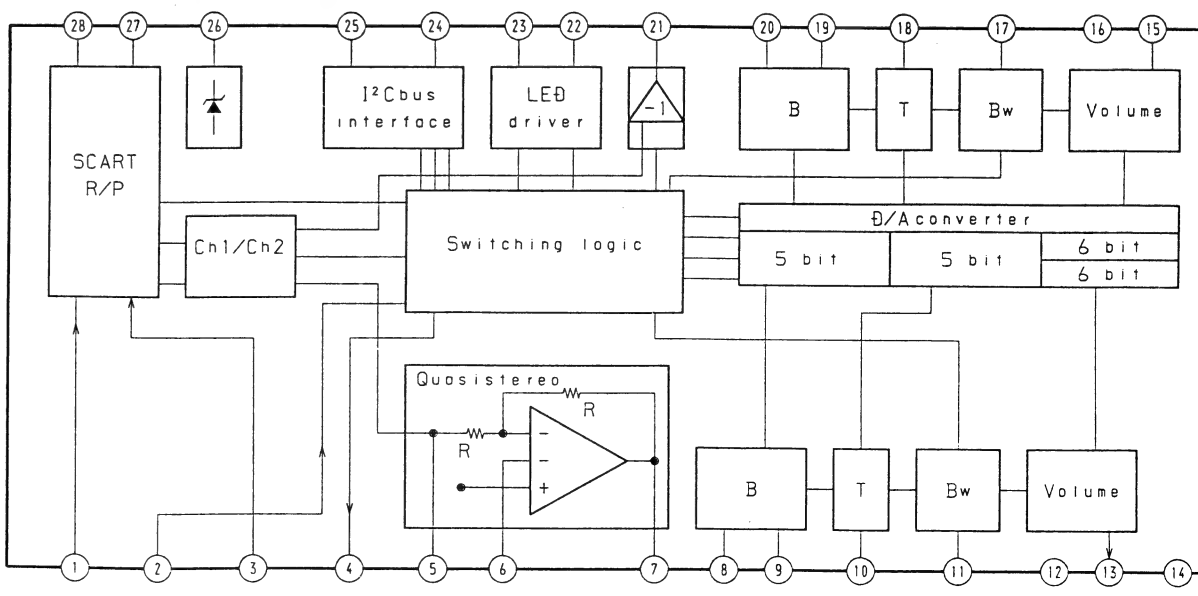
B-SS4111<UK.>-H1

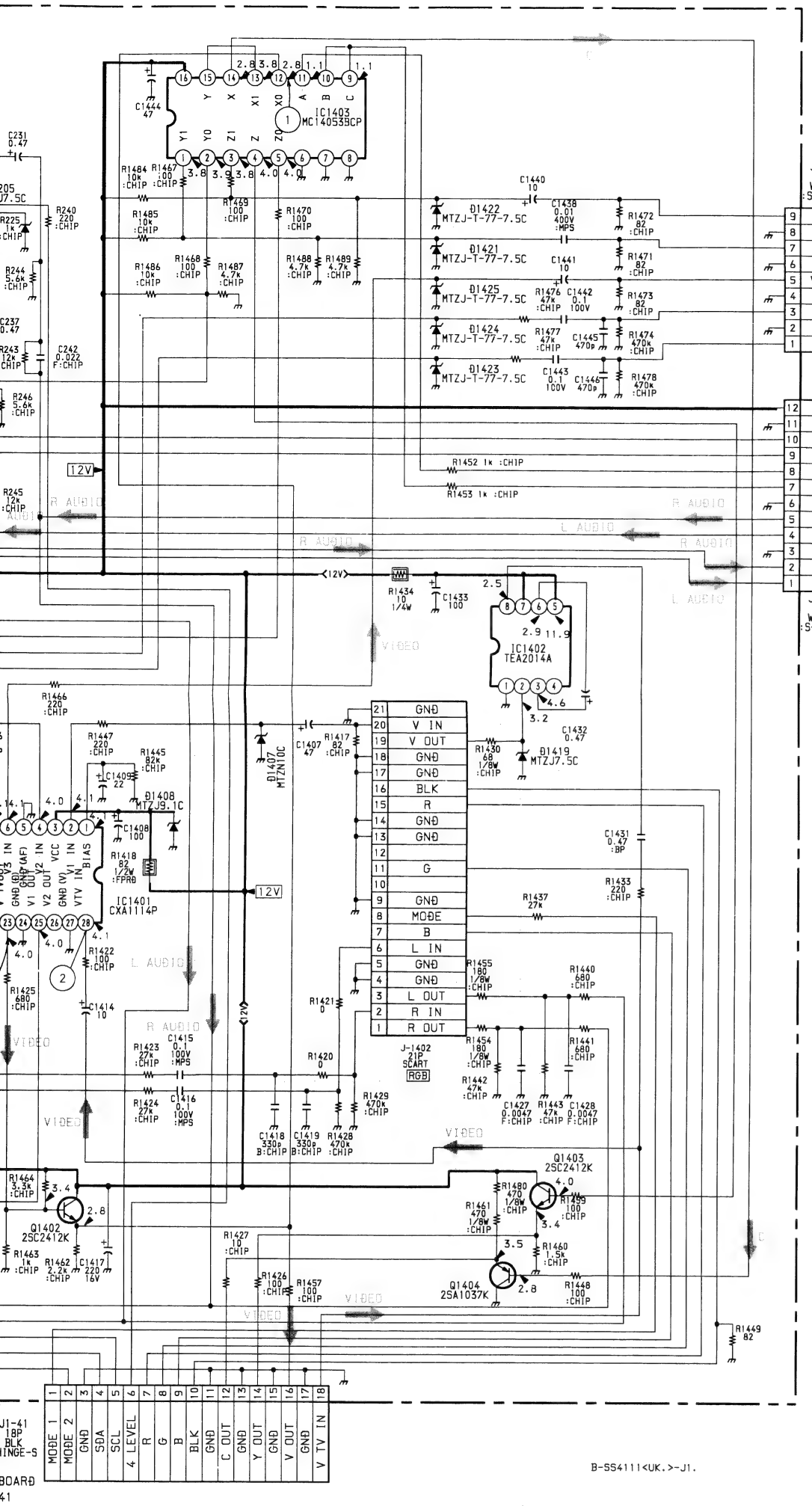


H2 BOARD IC1651 SBX1610-11



J1 BOARD IC201 TDA6200

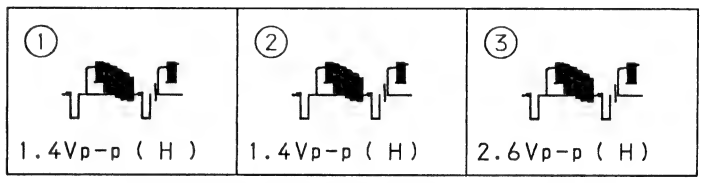




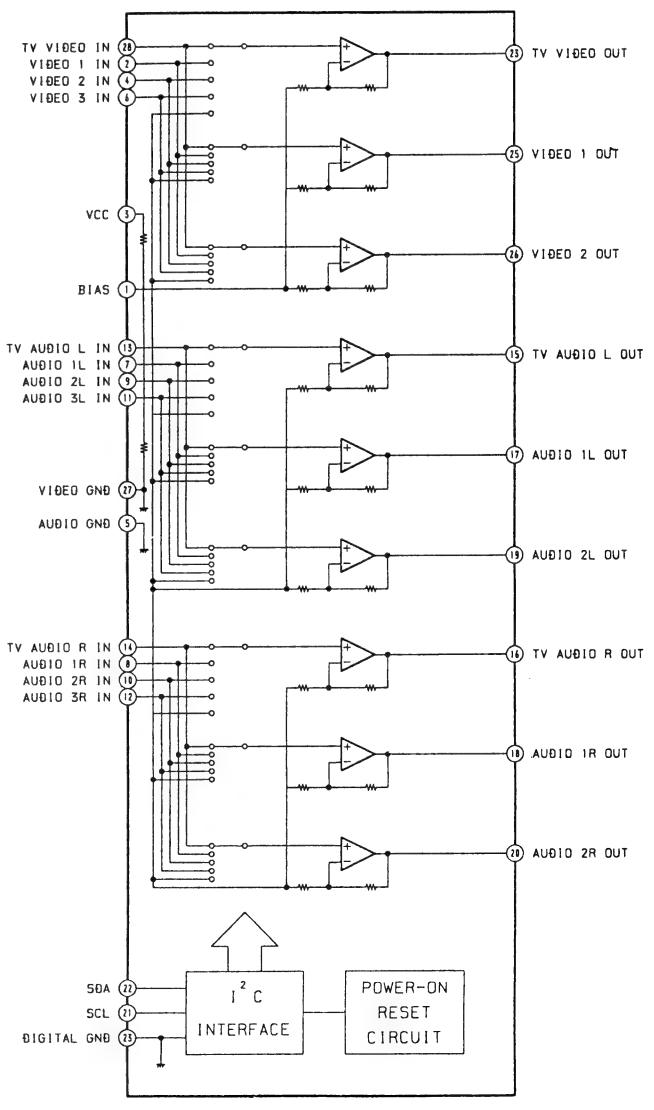
— J1 Board —

IC201	TDA6200	AUDIO CONTROL
IC1401	CXA1114P	AV SW
IC1402	TEA2014A	SCART VIDEO OUT
IC1403	MC14053BCP	COMPOSITE Y/C SW
IC1501	TEA2031A	EAST-WEST CORRECTION
Q201	2SC2412K	AUDIO R BUFF
Q202	2SC2412K	AUDIO L BUFF
Q1401	2SA1037K	VIDEO OUT
Q1402	2SC2412K	VIDEO OUT BUFF
Q1403	2SC2412K	Y OUT BUFF
Q1404	2SA1037K	C OUT BUFF
D201	MTZJ-T-77-9.1C	PROTECT
D202	MTZJ-T-77-9.1C	PROTECT
D205	MTZJ-T-77-7.5C	PROTECT
D206	MTZJ-T-77-7.5C	PROTECT
D1401	MTZJ-T-77-7.5C	PROTECT
D1403	MTZJ-T-77-7.5C	PROTECT
D1404	MTZJ-T-77-7.5C	PROTECT
D1405	MTZJ-T-77-7.5C	PROTECT
D1406	MTZJ-T-77-7.5C	PROTECT
D1407	MTZN-T-77-10C	PROTECT
D1408	MTZJ-T-77-9.1C	REG
D1409	MTZJ-T-77-9.1C	PROTECT
D1410	MTZJ-T-77-9.1C	PROTECT
D1415	MTZJ-T-77-7.5C	PROTECT
D1418	MTZJ-T-77-7.5C	PROTECT
D1419	MTZJ-T-77-7.5C	PROTECT
D1420	MTZJ-T-77-7.5C	PROTECT
D1421	MTZJ-T-77-7.5C	PROTECT
D1422	MTZJ-T-77-7.5C	PROTECT
D1423	MTZJ-T-77-7.5C	PROTECT
D1424	MTZJ-T-77-7.5C	PROTECT
D1425	MTZJ-T-77-7.5C	PROTECT
D1426	MTZJ-T-77-7.5C	PROTECT
D1501	RGP10GPKG23	PROTECT
D1502	1SS133	DECOUPLING H SIZE
D1503	1SS133	CLIPPING V PARABORA
D1504	1SS133	CLIPPING H PULSE
D1505	1SS133	REG
D1506	MTZJ-T-77-36D	PROTECT
D1507	1SS133	PROTECT
D1510	1SS133	REG

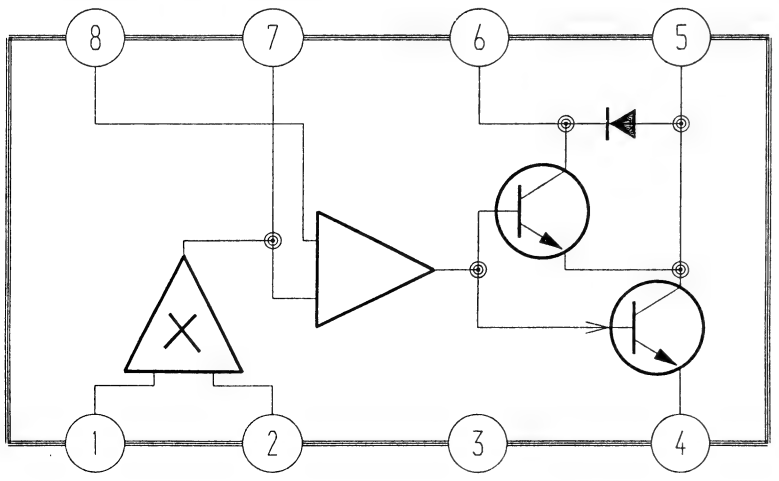
— J1 Board —



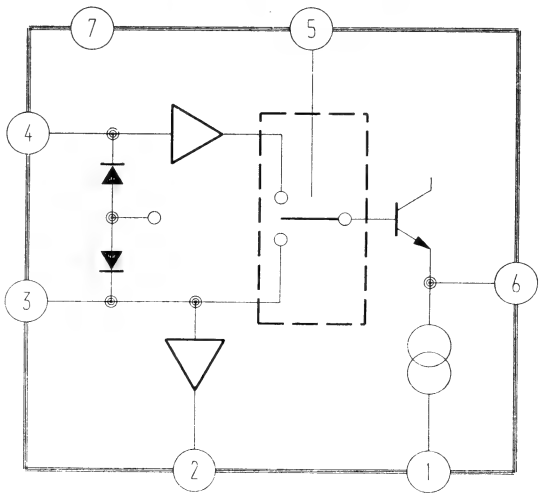
J1 BOARD IC1401 CXA1114P



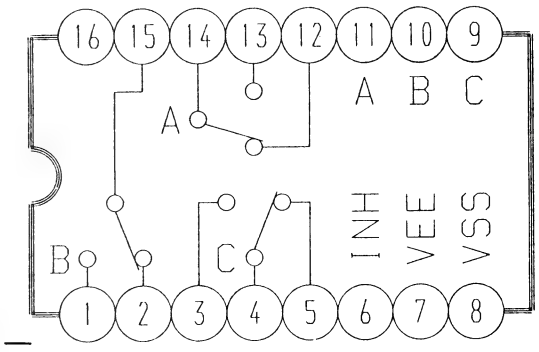
J1 BOARD IC1501 TEA2031A



J1 BOARD IC1402 TEA2014A

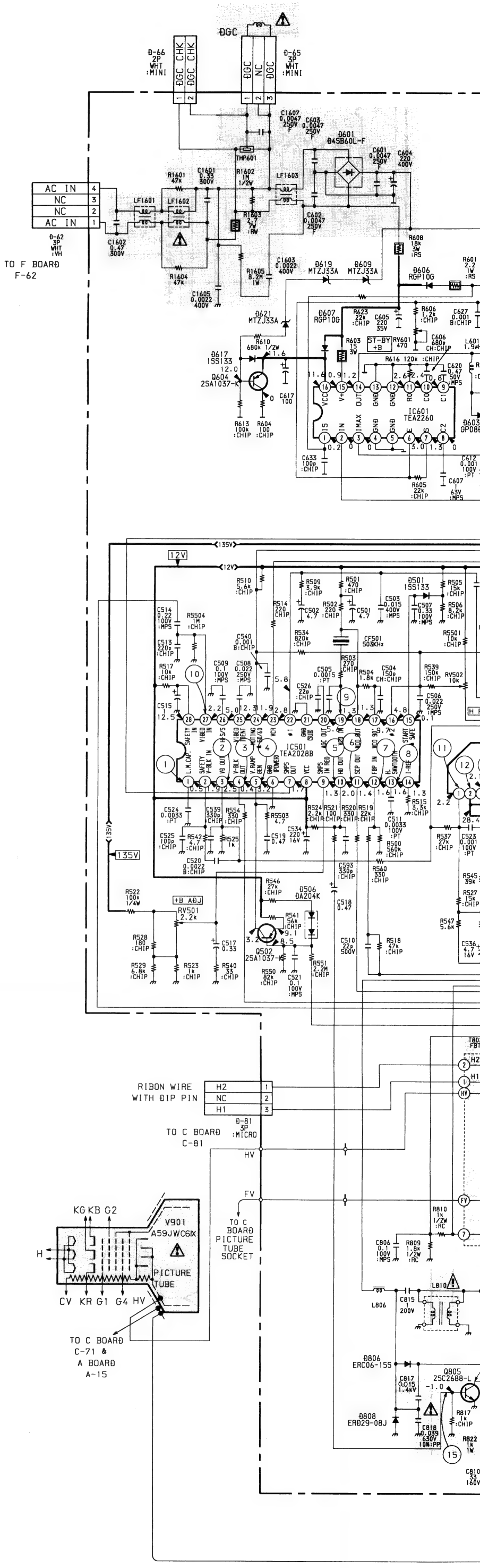


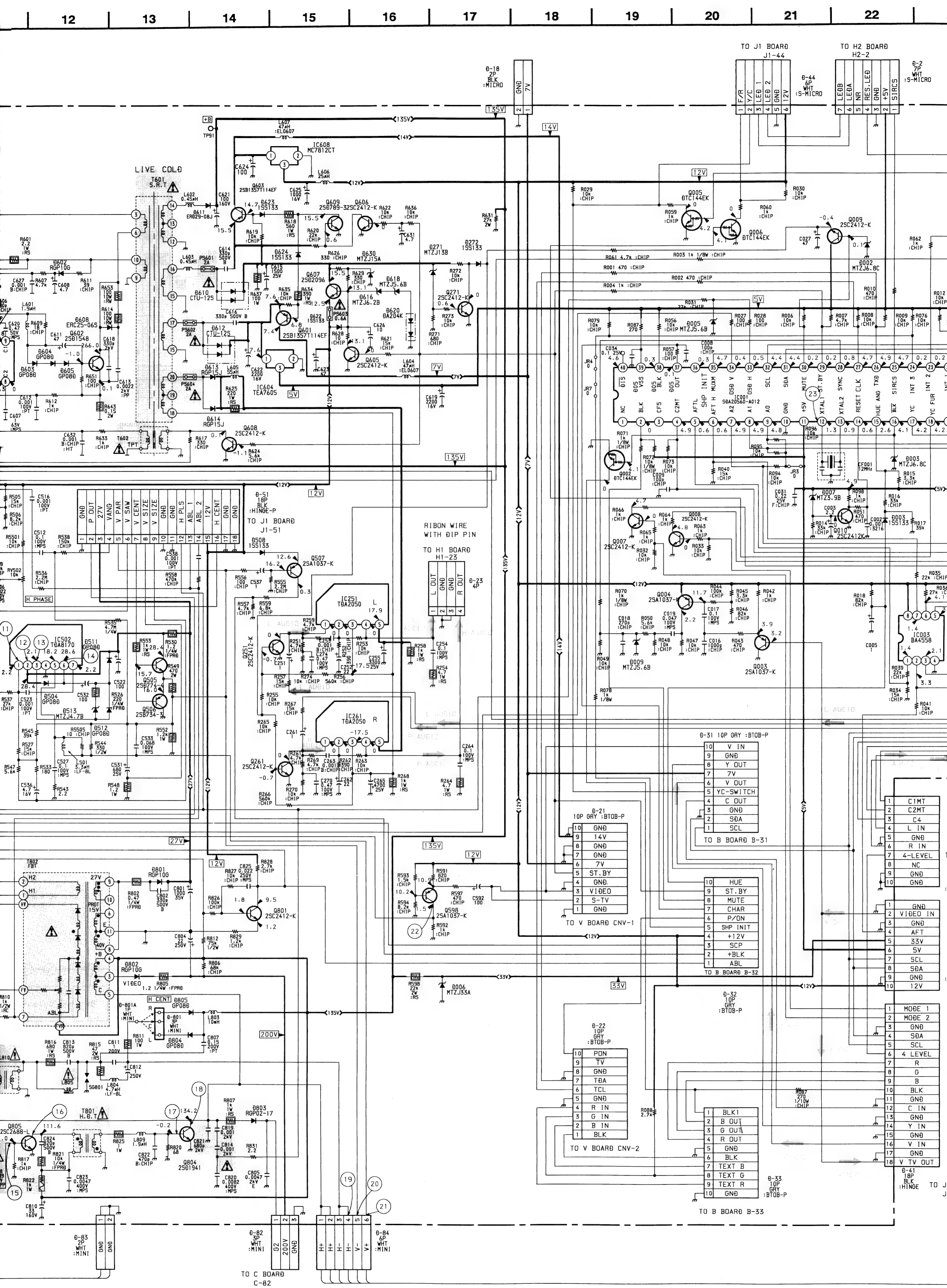
J1 BOARD IC1403 MC14053BCP



— D Board —

① 1.4Vp-p (H)	② 3.0Vp-p (V)	③ 5.0Vp-p (V)
④ 3.0Vp-p (V)	⑤ 4.4 Vp-p (H)	⑥ 11.0Vp-p (H)
⑦ 15.0Vp-p (H)	⑧ 3.6Vp-p (H)	⑨ 0.8Vp-p (503KMz)
⑩ 1.4Vp-p (H)	⑪ 0.8Vp-p (V)	⑫ 2.2Vp-p (V)
⑬ 32.0 Vp-p(V)	⑭ 28.0Vp-p(V)	⑮ 3.6Vp-p (H)
⑯ 250Vp-p (H)	⑰ 12.0Vp-p(H)	⑱ 1400Vp-p(H)
⑲ 220Vp-p (H)	⑳ 7.0Vp-p (V)	㉑ 54.0Vp-p (V)
㉒ 1.4Vp-p (H)	㉓ 4.4 Vp-p(12MHz)	

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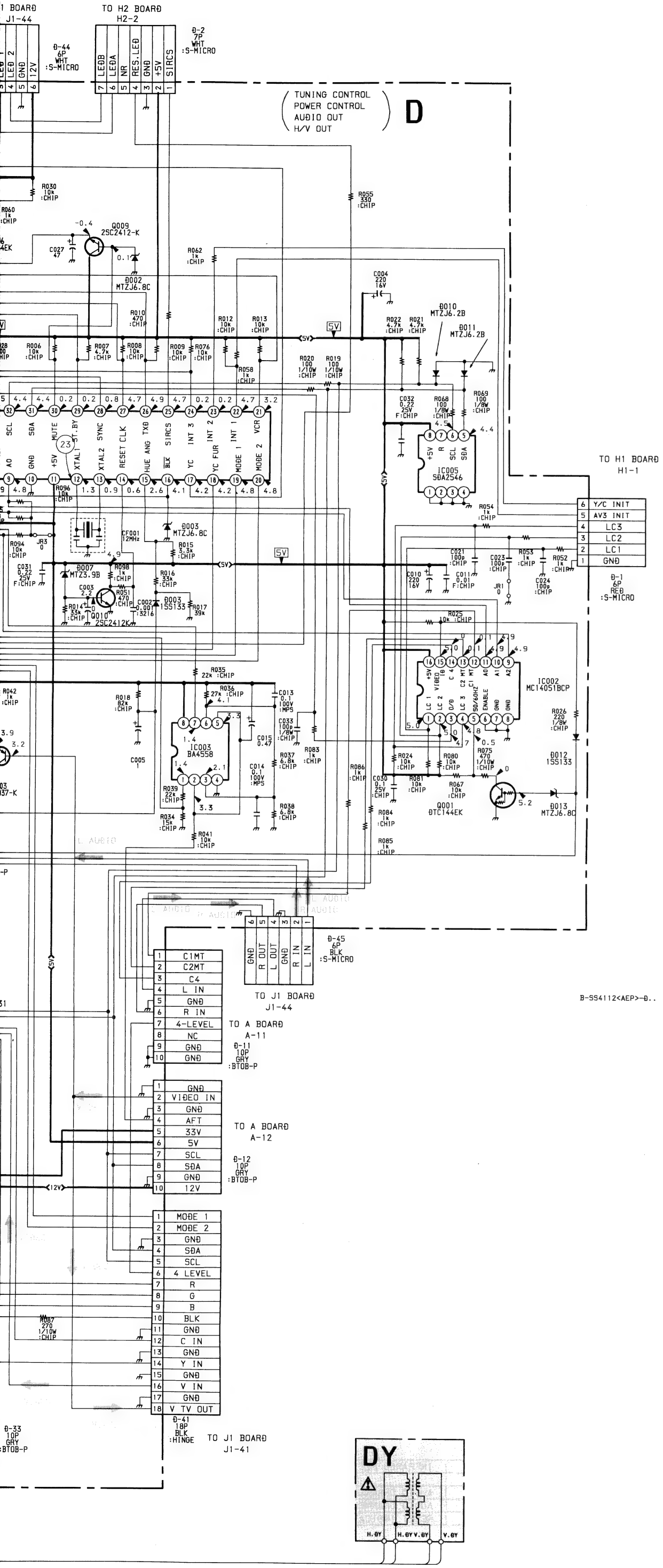
LIVE COLD
T601 S.R.T
IC608 MC7812CT
IC604 TEA7605
IC502 TDA8170
IC251 TDA2050 L
IC261 TDA2050 R
IC001 S0A20560-A012
IC003 BA4558
TO J1 BOARD J1-44
TO H2 BOARD H2-2
TO H1 BOARD H1-23
TO J1 BOARD J1-51
RIBON WIRE WITH DIP PIN
H PHASE
TO B BOARD B-31
TO B BOARD B-32
TO B BOARD B-33
TO V BOARD CNV-1
TO V BOARD CNV-2
TO C BOARD C-82
D-18 2P BLK :MICRO
D-44 6P WHT :S-MICRO
D-2 7P WHT :S-MICRO
D-51 18P BLK :HINGE-P
D-23 4P
D-31 10P GRY :BTOB-P
D-21 10P GRY :BTOB-P
D-22 10P GRY :BTOB-P
D-32 10P GRY :BTOB-P
D-33 10P GRY :BTOB-P
D-41 18P BLK :HINGE
D-83 2P WHT :MINI
D-82 3P WHT :MINI
D-84 6P WHT :MINI
D-801A 1P WHT :MINI
D-801 3P WHT :MINI
135V
14V
12V
7V
5V
33V
27V
200V



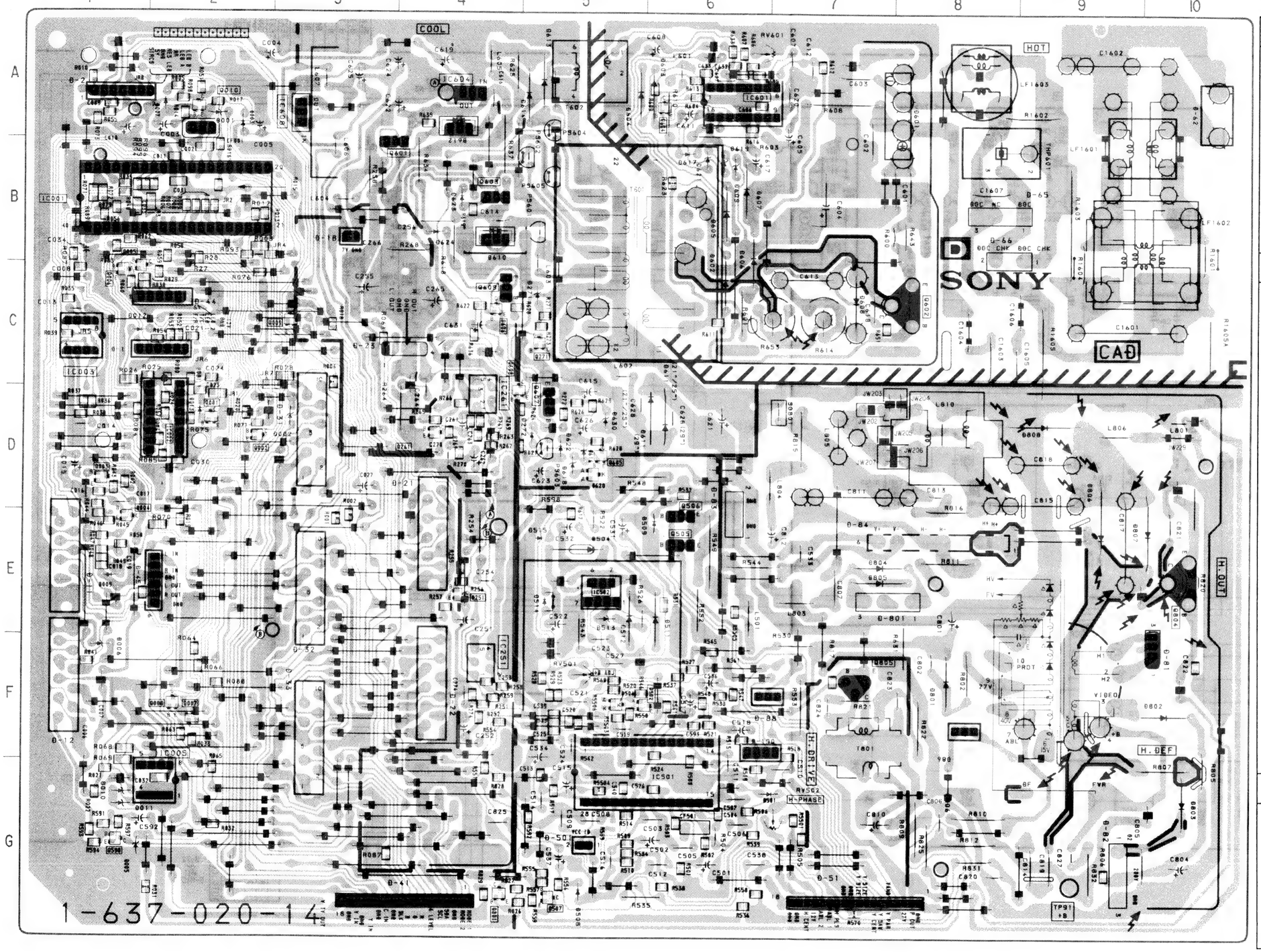
— D Board —

IC001	SDA20560	TUNING CTL
IC002	MC14051BCP	ON SCREEN DISPLAY
IC003	BA4558	AFT COMPARATOR
IC005	SDA2546	MY MEMORY
IC251	TDA2050	AUDIO OUT (L)
IC261	TDA2050	AUDIO OUT (R)
IC501	TEA2028B	DEFLECTION PROCESSOR
IC502	TDA8170	V OUT
IC601	TEA2260	PRIMARY SMRS CTL
IC604	TEA7605	+5V REG
IC608	MC7812CT	+12V REG
Q001	DTC144EK	50/60Hz SW
Q002	DTA144EK	BLK SW
Q003	2SA1037K	SYNC SEPARATOR
Q004	2SA1037K	SYNC SEPARATOR
Q005	DTC144EK	Y/C SW
Q006	DTC144EK	FRONT/REAR SW
Q007	2SC2412K	MODE 2 SWITCH
Q008	2SC2412K	MODE 1 SWITCH
Q009	2SC2412K	MUTE SW
Q010	2SC2412K	RESET
Q251	2SC2412K	AUDIO MUTE
Q261	2SC2412K	AUDIO MUTE
Q271	2SC2412K	VOLTAGE DETECT
Q502	2SA1037K	CONSTANT CURRENT SOURCE
Q505	2SD774	V CENT
Q506	2SB734	V CENT
Q507	2SA1037K	CANAL +BLK
Q598	2SA1037K	VIDEO AMP
Q601	2SB1357T114EF	STBY SW
Q602	2SD1548	REG OUT
Q603	2SB1357T114EF	STBY SW
Q604	2SA1037K	FAST ON/OFF
Q605	2SC2412K	STBY SW
Q606	2SC2412K	STBY SW
Q607	2SD2096-EF	+12V REG
Q608	2SC2412K	STBY SW
Q609	2SD789-3	STBY SW
Q801	2SC2412K	ABL AMP
Q804	2SD1941	H OUT
Q805	2SC2688	H DRIVER

D001	MTZJ6.8C	PROTECT
D002	MTZJ6.8C	PROTECT
D003	1SS133	HUE CTL
D005	MTZJ5.6B	PROTECT
D006	MTZJ33A	VC VOLTAGE REGULATION
D007	MTZJ3.9B	PROTECT RESET
D009	MTZJ5.6B	CLIPPING SYNC LEVEL
D010	MTZJ6.2B	PROTECT
D011	MTZJ6.2B	PROTECT
D012	1SS133	PROTECT
D013	MTZJ6.8C	PROTECT
D271	MTZJ13B	VOLTAGE DETECT
D272	1SS133	DECOUPING MUTE AUDIO
D501	1SS133	SOFT START
D504	GP08DPKG23	V PULSE OUT
D506	DA204K	CURRENT REG
D508	1SS133	CANAL +BLK LEVEL
D509	1SS133	V LIN
D511	GP08DPKG23	PROTECT
D512	GP08DPKG23	PROTECT
D513	MTZJ4.7B	PROTECT
D601	D4SB60L-F	AC RECT
D602	RGP10GPKG23	REF RECT
D603	GP08DPKG23	SMPS DRIVE 1
D604	GP08DPKG23	SMPS DRIVE 2
D605	GP08DPKG23	SMPS DRIVE 3
D606	RGP10GPKG23	+12V RECT
D607	RGP10GPKG23	REF RECT
D608	ERC25-06S	PLUSE CLIPPER
D609	MTZJ33A	FAST ON/OFF
D610	CTU-12S	+14V RECT
D611	ERD29-08J	+135V RECT
D612	CTU-12S	+7V RECT
D613	RGP15J-6040G23	AF V RECT-1
D614	RGP15J-6040G23	AF V RECT-2
D616	MTZJ6.2B	+12V REG
D617	1SS133	PROTECT
D618	MTZJ5.6B	+12V REF
D619	MTZJ33A	FAST ON/OFF-2
D620	DA204K	+12V REF
D621	MTZJ33A	FAST ON/OFF-3
D622	1SS133	PROTECT
D623	1SS133	DECOUPING STBY
D624	1SS133	DECOUPING DTBY
D630	MTZJ15A	+12V RECT
D801	RGP10GPKG23	+27V RECT
D802	RGP10GPKG23	+200V RECT
D803	RGP02-17PKG23	G2 RECT
D804	GP08DPKG23	H CENTER-1
D805	GP08DPKG23	H CENTER-2
D806	ERC06-15S	H DAMPER-1
D807	ERC06-15C	H DAMPER-2
D808	ERD28-08S	PIN DAMPER

D [TUNING CONTROL, POWER CONTROL, AUDIO OUT, H/V OUT]

— D Board —



— D Board —

IC

IC001	B-2
IC002	D-2
IC003	C-1
IC005	G-2
IC251	F-4
IC261	D-4
IC501	G-6
IC502	E-5
IC601	A-6
IC604	A-4
IC608	A-3

TRANSISTOR

Q001	D-2
Q002	D-2
Q003	D-1
Q004	E-1
Q005	C-1
Q006	C-1
Q007	F-2
Q008	F-2
Q009	C-3
Q010	A-2
Q251	E-4
Q261	D-4
Q271	C-5
Q502	F-6
Q505	E-6
Q506	D-6
Q507	G-5
Q598	G-1
Q601	B-3
Q602	C-8
Q603	B-4
Q604	A-6
Q605	D-5
Q606	C-4
Q607	D-5
Q608	D-4
Q609	C-4
Q801	G-4
Q804	E-10
Q805	F-7

DIODE

D001	A-2
D002	D-3
D003	A-2
D005	G-1
D006	F-1
D007	A-2
D009	E-1
D010	G-1
D011	G-1
D012	C-1
D013	D-2
D271	C-5
D272	D-5
D501	G-7
D504	E-5
D506	F-5
D508	G-5
D509	E-6
D511	E-6
D512	E-5
D513	E-5
D514	E-5
D515	E-5
D601	A-8
D602	C-6
D603	A-6
D604	A-5
D605	B-6
D606	B-6
D607	B-6
D608	C-7
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D612	A-4
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D614	A-5
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D620	D-5
D621	B-6
D622	D-5
D623	B-4
D624	B-4
D630	D-5
D801	F-8
D802	F-10
D803	G-10
D804	E-7
D805	E-7
D806	E-9
D807	E-10
D808	D-9

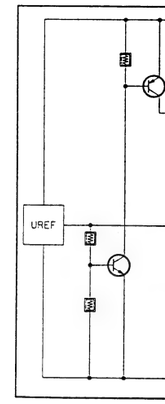
VARIABLE RESISTOR

RV501	F-5
RV502	G-7
RV601	A-6

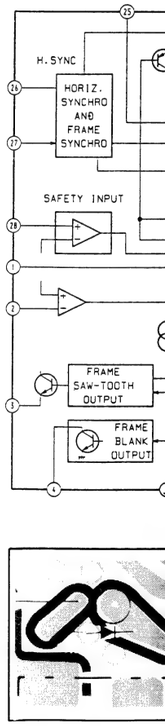
TP

TP91	G-9

D BOARD IC25



D BOARD IC501



KV-H2511D
MDR-IF310/RM-816

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OR
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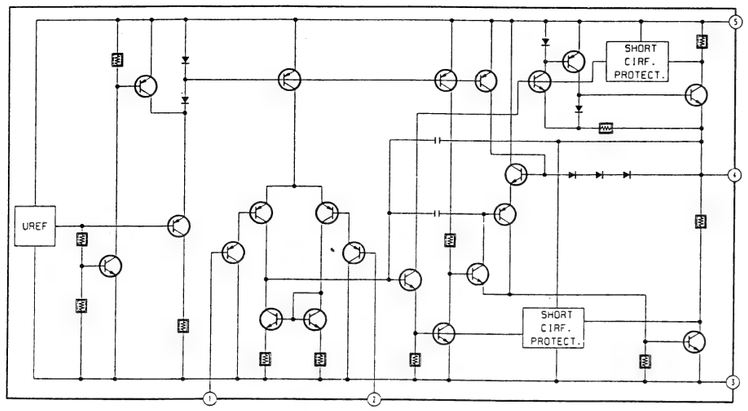
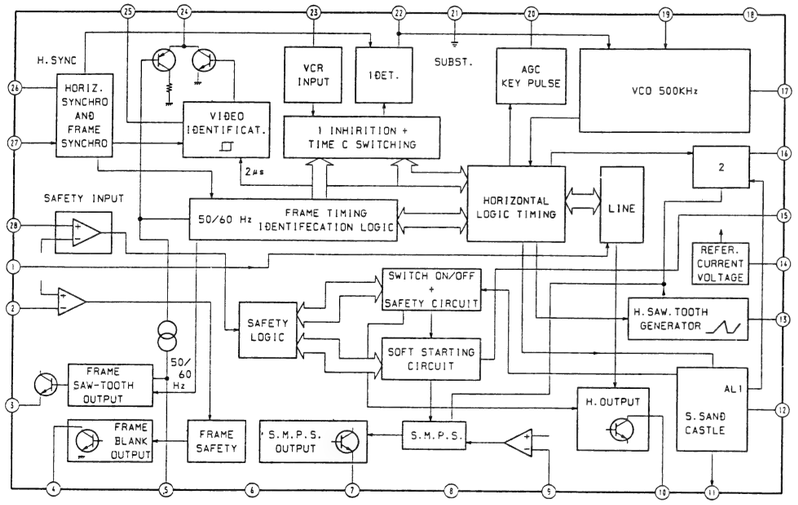
D BOARD IC251, IC261 TDA2050

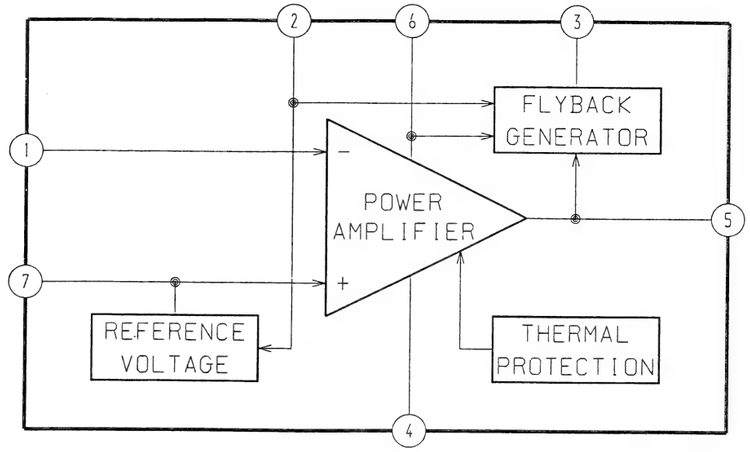


D BOARD IC501 TEA2028B

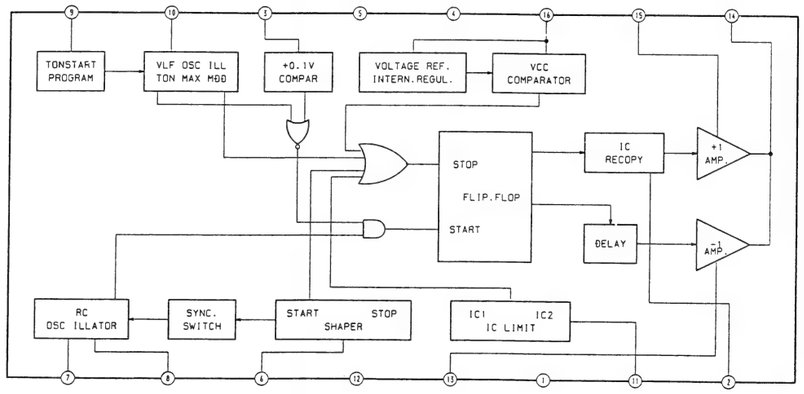


NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

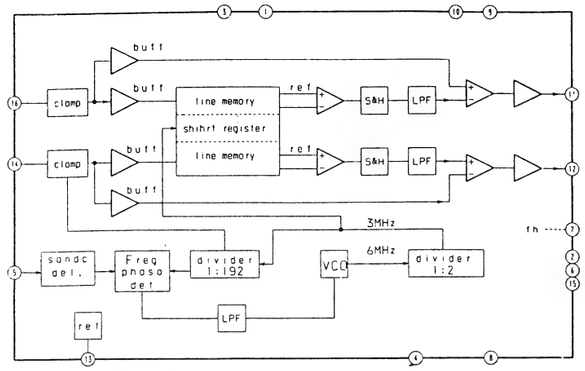
D BOARD IC502 TDA8170



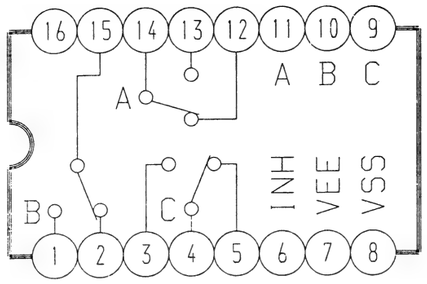
D BOARD IC601 TEA2260



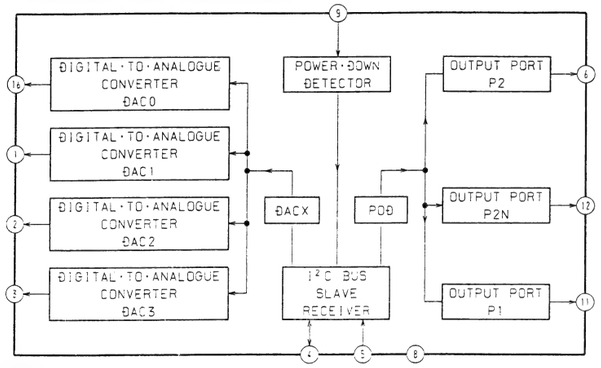
B BOARD IC332 TDA4660V2



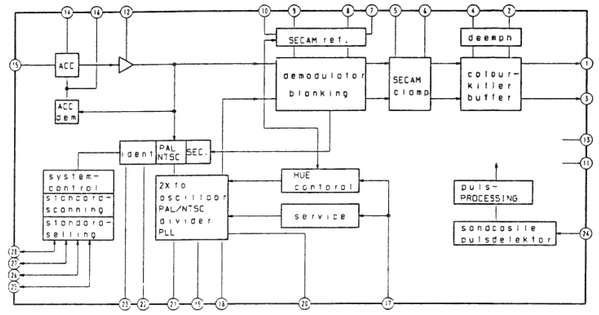
B BOARD IC303 MC14053BCP



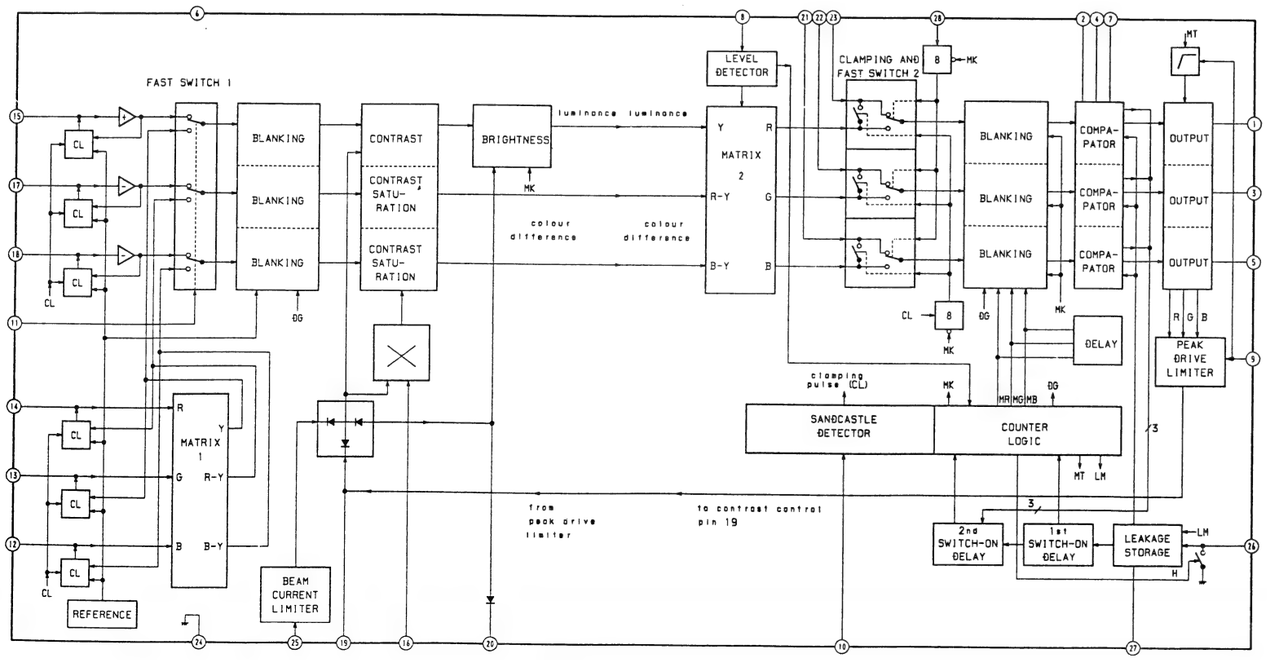
B BOARD IC302 TDA8442-N3



B BOARD IC331 TDA4650



B BOARD IC301 TDA4580-V7



— B Board —

① PAL, SECAM 4.8Vp-p (H)	① NTSC 3.58/4.43 4.8 Vp-p (H)	② PAL, SECAM 4.8 Vp-p (H)
② NTSC 3.58/4.43 4.8Vp-p (H)	③ PAL, SECAM 4.8Vp-p (H)	③ NTSC 3.58/4.43 4.8Vp-p (H)
④ 1 Vp-p (H)	⑤ PAL 0.4Vp-p (H)	⑤ SECAM 0.36 Vp-p (H)
⑤ NTSC 3.58/4.43 0.46Vp-p (H)	⑥ PAL, SECAM 0.9Vp-p (H)	⑥ NTSC 3.58/4.43 0.7Vp-p (H)
⑦ PAL, SECAM 1.1Vp-p (H)	⑦ NTSC 3.58/4.43 1 Vp-p (H)	⑧ PAL 0.5Vp-p (H)
⑧ SECAM 1.1 Vp-p (H)	⑧ NTSC 3.58/4.43 0.4Vp-p (H)	⑨ PAL 0.6Vp-p (H)
⑨ SECAM 1.3Vp-p (H)	⑨ NTSC 3.58/4.43 0.6 Vp-p (H)	⑩ SECAM 1.4 Vp-p (H)
⑪ SECAM 0.2Vp-p (H)	⑫ PAL 0.2Vp-p (H)	⑫ SECAM 0.12Vp-p (H)
⑫ NTSC 3.58/4.43 0.09Vp-p (H)	⑬ PAL 0.4Vp-p (H)	⑬ SECAM 0.1 Vp-p (H)
⑬ NTSC 3.58/4.43 0.4 Vp-p (H)	⑭ PAL 1 Vp-p (H)	⑭ SECAM 1 Vp-p (H)
⑭ NTSC 3.58/4.43 1.1Vp-p (H)	⑮ PAL 1 Vp-p (H)	⑮ SECAM 0.9Vp-p (H)
⑮ NTSC 3.58/4.43 1 Vp-p (H)	⑯ PAL, SECAM 0.4Vp-p (H)	⑯ NTSC 3.58/4.43 0.54Vp-p (H)

— B Board —

IC301	TDA4580-V7	VIDEO PROCESSOR
IC302	TDA8442-N3	D/A CONVERTER IC BUS
IC303	MC14053BCP	Y/C COMP SW
IC331	TDA4650-V4	COLOR PROCESSOR
IC332	TDA4660V2	1H-DELAY
Q301	2SC2412K	Y BUFFER
Q303	2SC2412K	STBY SW
Q305	DTA144EK	ANTI PRIORITY SCART
Q306	JC501TP	VIDEO BUFF
Q311	2SC2412K	ON SCREEN DISPLAY SW
Q312	2SC2412K	CANAL +BLK
Q313	2SC2412K	ON SCREEN DISPLAY
Q316	2SC2412K	FAS PICTURE MUTE SW
Q330	2SA1037K	VIDEO AMP
Q331	DTC124EK	NTSC SW
Q332	2SA1037K	VIDEO BUFF
Q333	2SA1037K	Y AMP
Q334	2SC2412K	PAL/NTSC SW
Q335	2SC2412K	SECAM SW
Q381	DTC124EK	MUTE
Q382	2SC2412K	ABL
Q1301	DTC124EK	Y BUFF
Q1306	2SC2412K	Y OUT
D301	1SS133	ACO AT STBY
D302	1SS133	ACO AT STBY
D303	1SS133	ACO AT STBY
D304	1SS133	DECOUPLING BLK
D305	1SS133	PROTECT
D307	MTZ11CJ	PROTECT
D309	1SS133	PROTECT
D310	MTZ11CJ	PROTECT
D311	MTZ11CJ	PROTECT
D312	MTZ11CJ	PROTECT
D313	1SS133	PROTECT
D314	1SS133	PROTECT
D315	1SS133	PROTECT
D316	1SS133	PROTECT
D317	1SS133	PROTECT
D318	1SS133	PROTECT
D319	1SS133	PROTECT
D320	1SS133	PROTECT
D331	1SS133	SECAM SW
D332	1SS133	SECAM SW
D333	1SS133	SECAM SW
D350	MTZ5.6CJ	PROTECT

— B Board —

As to the voltage volue shown by the mark ✳ on the Schematic Diagram, see the another list.

		PAL	SECAM	NTSC3.58	NTSC4.43
IC301	①	0.1	0.1	5.8	0.1
	㉔	6.7	6.8	5.1	5.1
IC331	⑱	3.1	3.6	3.1	2.8
	㉑	3.0	3.5	2.9	2.7
	㉒	5.6	5.6	7.1	7.2
	㉓	7.5	7.0	5.6	5.6
	㉕	0.1	0.1	0.1	5.8
	㉖	0.1	0.1	5.8	0.1
	㉗	0.1	5.8	0.1	0.1
	㉘	5.9	0.1	0.1	0.1
Q331	(B)	0.1	0.1	5.8	0.1
	(C)	1.5	1.9	0	0.8
Q333	(B)	3.4	4.4	4.4	4.4
Q334	(B)	4.9	0.1	4.8	4.8
Q335	(B)	0.1	4.8	0.1	0.1

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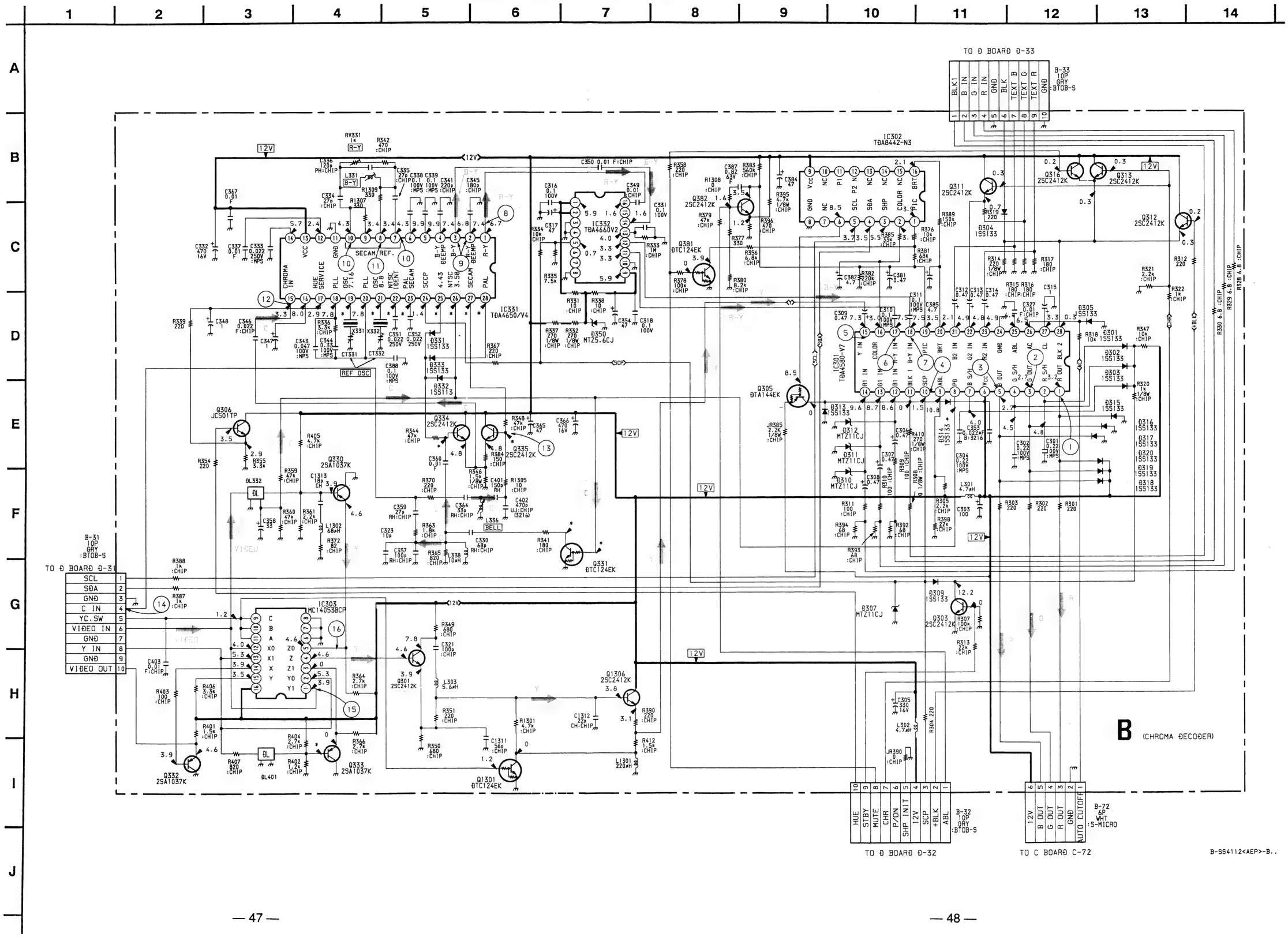
IDEO PROCESSOR
/A CONVERTER IC BUS
/C COMP SW
OLOR PROCESSOR
H-DELAY
BUFFER
TBY SW
NTI PRIORITY SCART
IDEO BUFF
N SCREEN DISPLAY SW
ANAL +BLK
N SCREEN DISPLAY
AS PICTURE MUTE SW
IDEO AMP
TSC SW
IDEO BUFF
AMP
AL/NTSC SW
ECAM SW
UTE
BL
BUFF
OUT
CO AT STBY
CO AT STBY
CO AT STBY
ECOUPLING BLK
ROTECT
ROTECT
ROTECT
ROTECT
ROTECT
ROTECT
ROTECT
ROTECT
ROTECT
ROTECT
ROTECT
ROTECT
ROTECT
ROTECT
ECAM SW
ECAM SW
ECAM SW
ECAM SW
ROTECT

own by the
Diagram, see

NTSC4.43
0.1
5.1
2.8
2.7
7.2
5.6
5.8
0.1
0.1
0.1
0.1
0.8
4.4
4.8
0.1



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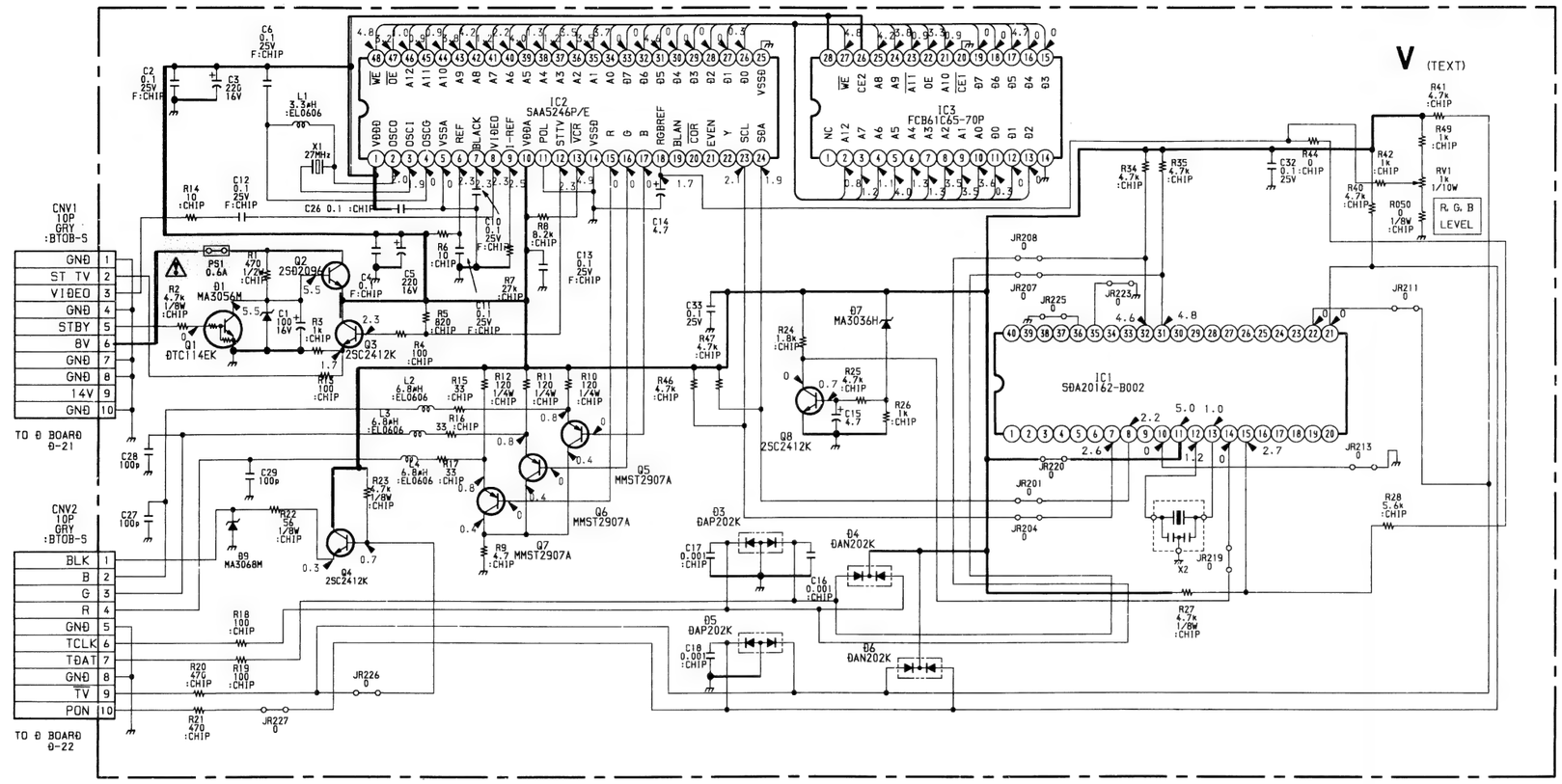
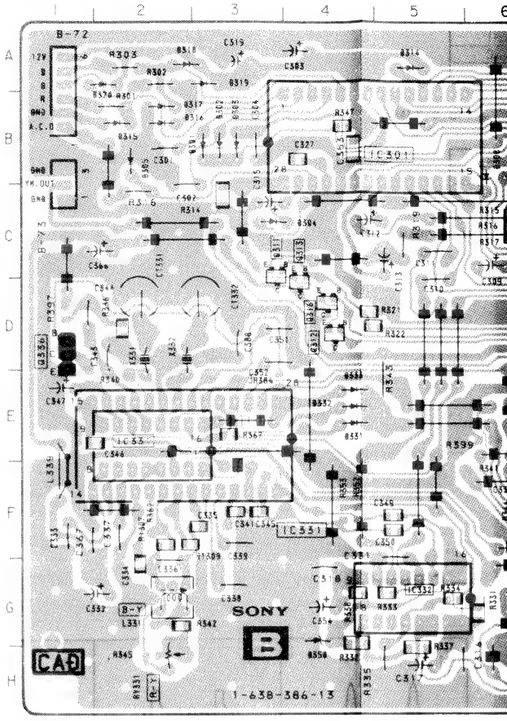
B [CHROMA DECOER]

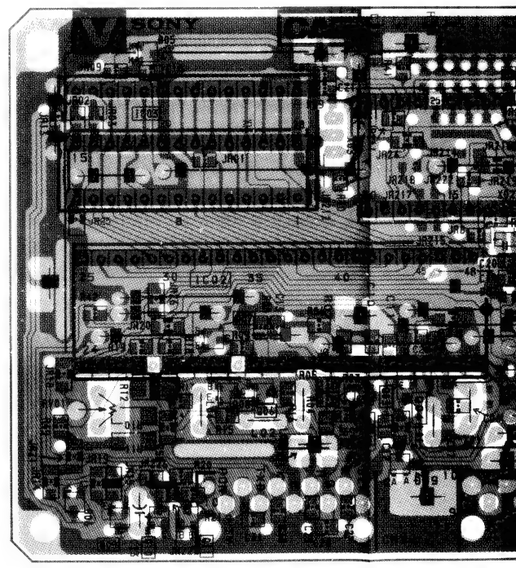
V [TEXT]



— B Board —



— V Board —



— V Board —

IC1	SDA20162-B002	MICRO-CONT
IC2	SAA5246E	IVT
IC3	FCB61C65L-70P	STATIC-RAM
Q1	DTC114EK	STAND BY
Q2	2SD2096	5V REG
Q3	2SC2412K	SYNC BUFFER
Q4	2SC2412K	BLK OUT
Q5	MMST2907A	B OUT
Q6	MMST2907A	G OUT
Q7	MMST2907A	R OUT
Q8	2SC2412K	P ON SW
D1	MA3056M	5V REG
D3	DAP202K	PROTECT
D4	DAN202K	PROTECT
D5	DAP202K	PROTECT
D6	DAN202K	PROTECT
D7	MA3036H	PROTECT
D9	MA3068M	PROTECT

B-SS4112<AEP>-V..

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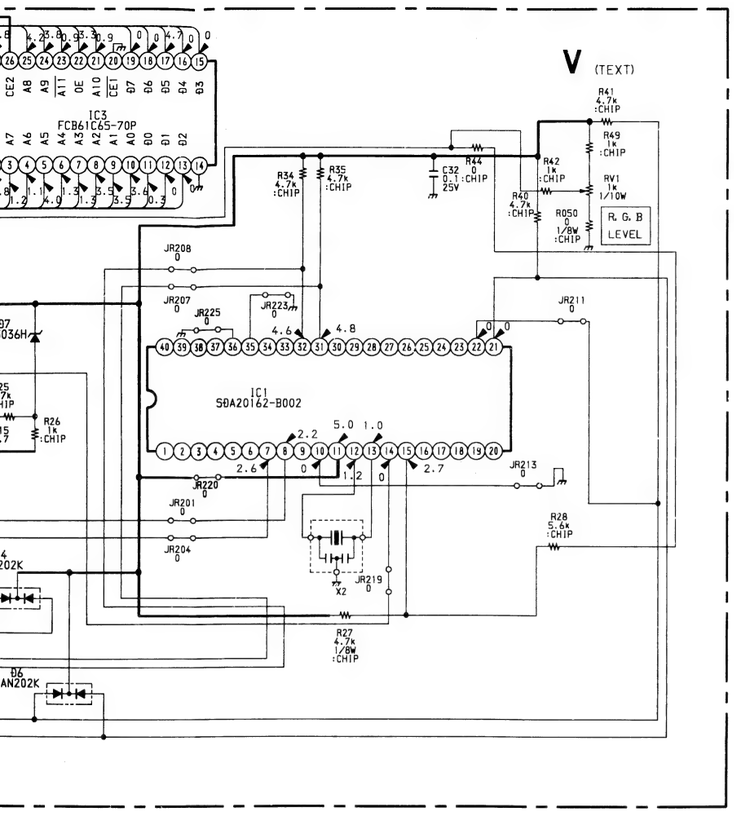
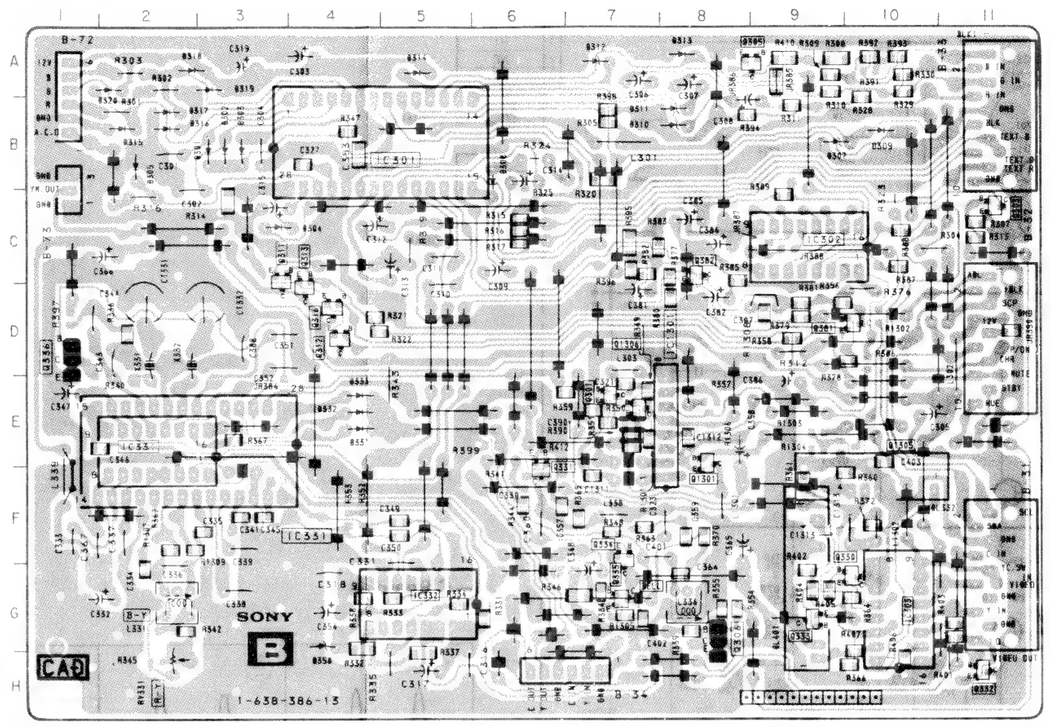
7 8 9 10 11 12

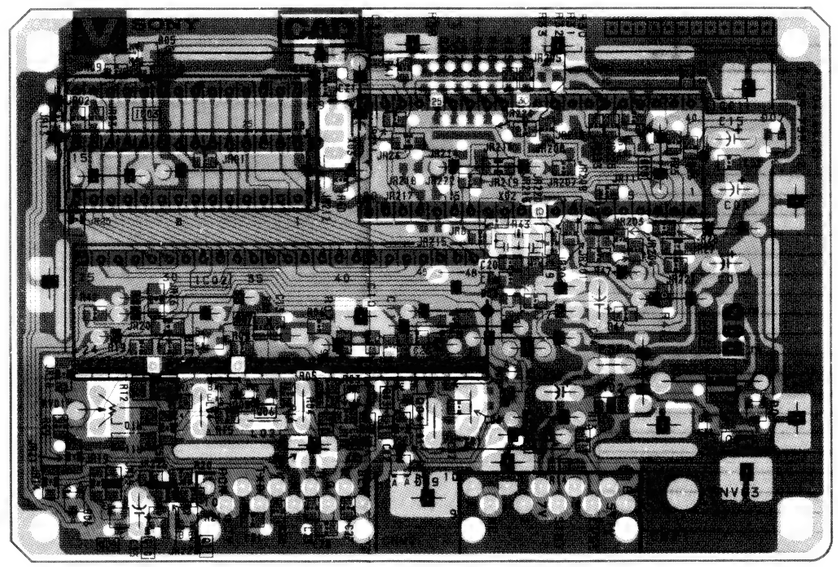
B [CHROMA DECOER] **V** [TEXT]



— B Board —



— V Board —



— B Board —

IC			
IC301	B – 5	D304	C – 3
IC302	C – 9	D305	B – 2
IC303	G – 10	D307	B – 9
IC331	E – 2	D309	B – 10
IC332	G – 5	D310	B – 8
TRANSISTOR		D311	B – 8
Q301	E – 7	D312	A – 7
Q303	C – 11	D313	A – 8
Q305	A – 9	D314	A – 5
Q306	G – 9	D315	B – 2
Q311	C – 3	D316	B – 2
Q312	D – 4	D317	B – 2
Q313	C – 4	D318	A – 2
Q316	D – 4	D319	A – 3
Q330	G – 10	D320	A – 2
Q331	F – 6	D331	E – 4
Q332	H – 11	D332	E – 4
Q333	G – 9	D333	E – 4
Q334	F – 7	D350	G – 4
Q335	G – 8	**TRIMMER**	
Q381	D – 10	CT331	D – 2
Q382	C – 8	CT332	D – 3
Q1301	E – 8	**VARIABLE RESISTOR**	
Q1306	E – 7	RV331	H – 2
DIODE			
D301	B – 3		
D302	B – 3		
D303	B – 3		

• ▒: Pattern from the side which enables seeing.
• ▒: Pattern of the rear side.

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KV-H2511D
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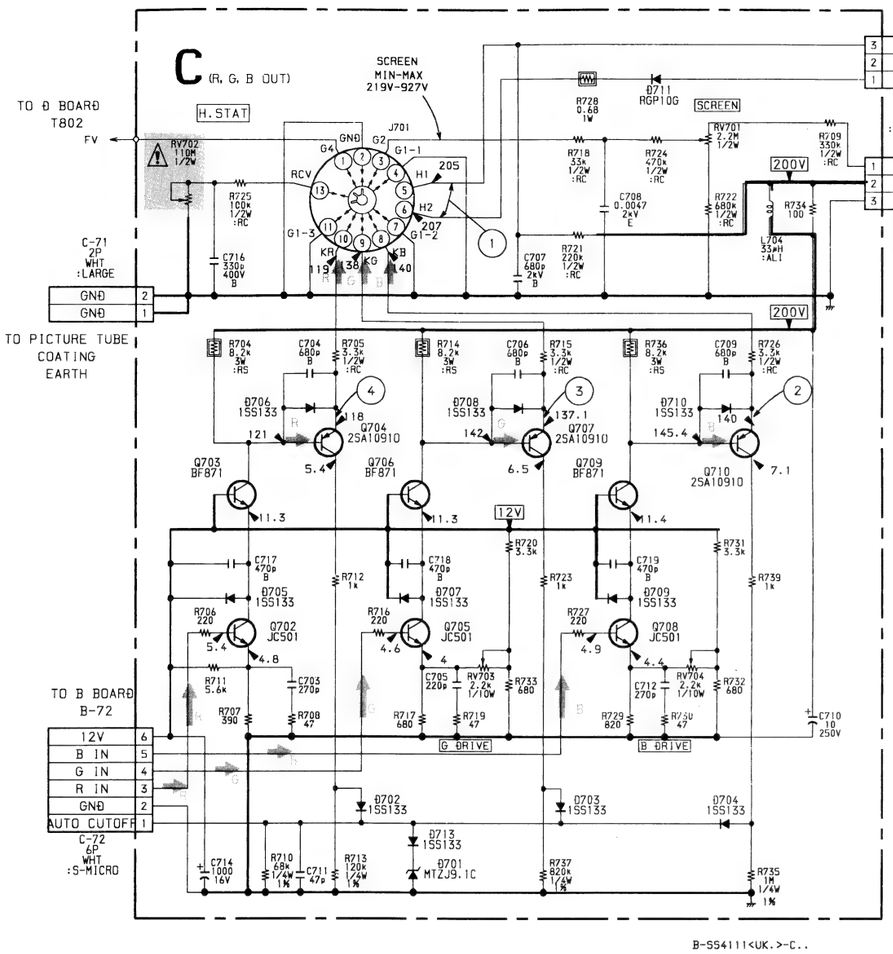


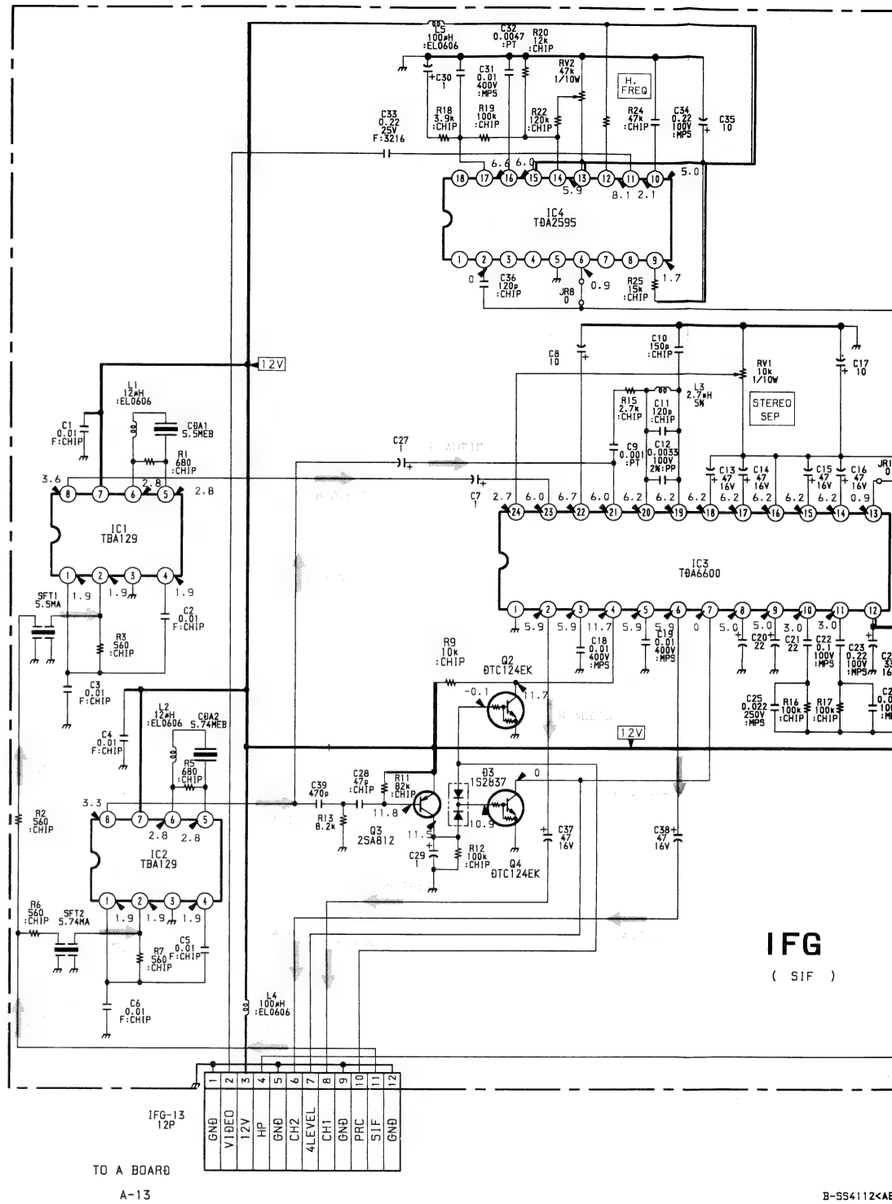
B-SS4111<UK.>-C..

— C Board —

① 24 Vp-p (H)	② 90 Vp-p (H)	③ 90 Vp-p (H)
④ 120Vp-p (H)		

— C Board —

Q702	JC501	R ÐRIVE
Q703	BF871	R OUT
Q704	2SA10910	ACO MEASURING
Q705	JC501	G ÐRIVE
Q706	BF871	G OUT
Q707	2SA10910	ACO MEASURING
Q708	JC501	B ÐRIVE
Q709	BF871	B OUT
Q710	2SA10910	ACO MEASURING
Ð701	MTZJ9.1C	PROTECT
Ð702	1SS133	PROTECT
Ð703	1SS133	PROTECT
Ð704	1SS133	PROTECT
Ð705	1SS133	PROTECT
Ð706	1SS133	PROTECT
Ð707	1SS133	PROTECT
Ð708	1SS133	PROTECT
Ð709	1SS133	PROTECT
Ð710	1SS133	PROTECT
Ð711	RGP10G	HEATING VOLTAGE REC
Ð713	1SS133	PROTECT



B-SS4112<AE

H1
NC
H2

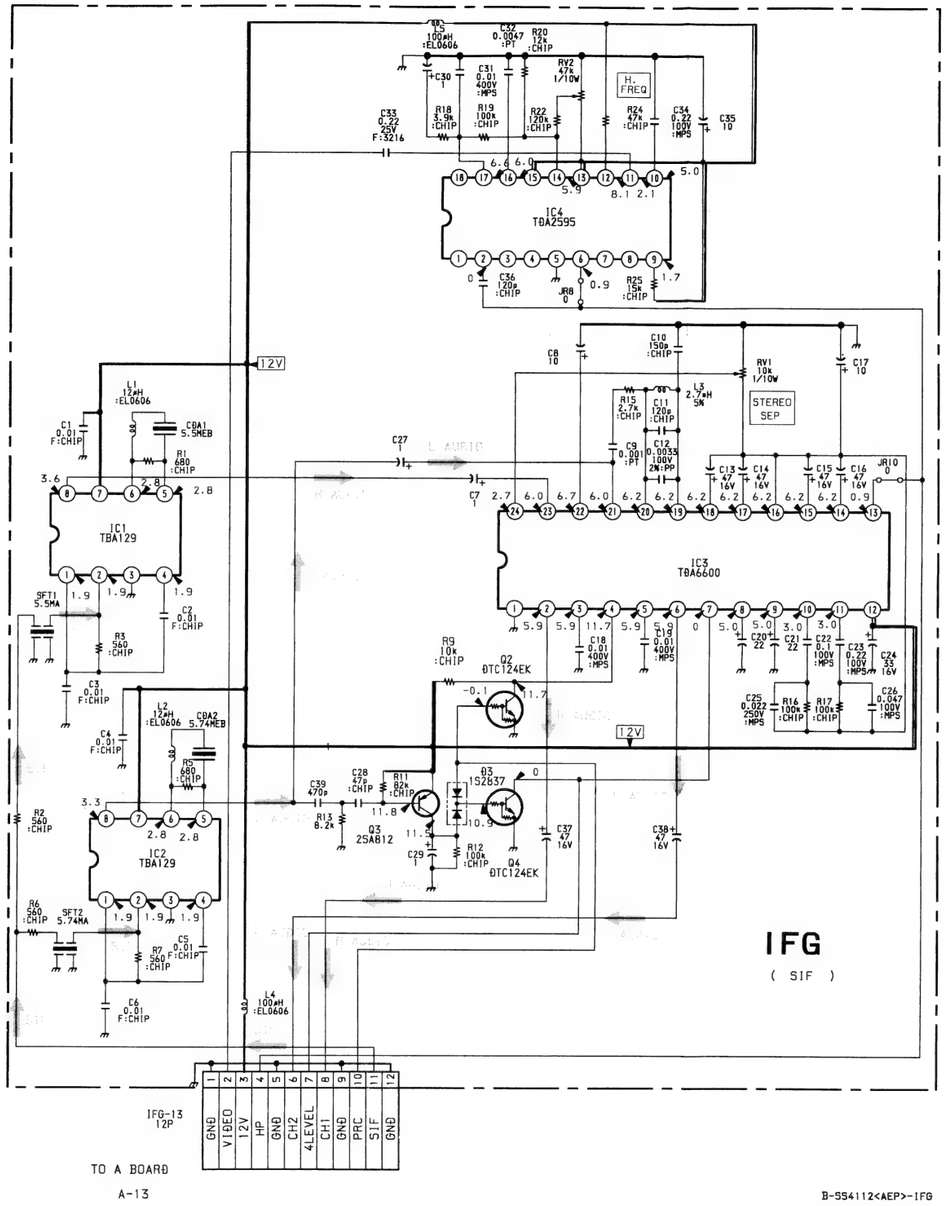
81
P
K
TCRO TO Ð BOARÐ Ð-81

G2
200V
GNÐ

J2
1
N1 TO Ð BOARÐ Ð-82

— C Board —

①	②	③
24 Vp-p (H)	90 Vp-p (H)	90 Vp-p (H)
④		
120Vp-p (H)		



— IFG Board —

IC1	TBA129	5.5 ÐET
IC2	TBA129	5.74ÐET
IC3	TÐA6600	SIF ÐET AMP
IC4	TÐA2595	H.FREQ AMP
Q2	ÐTC124EK	SW
Q3	2SA812	SW
Q4	ÐTC124EK	SW
Ð3	1S2837	SW

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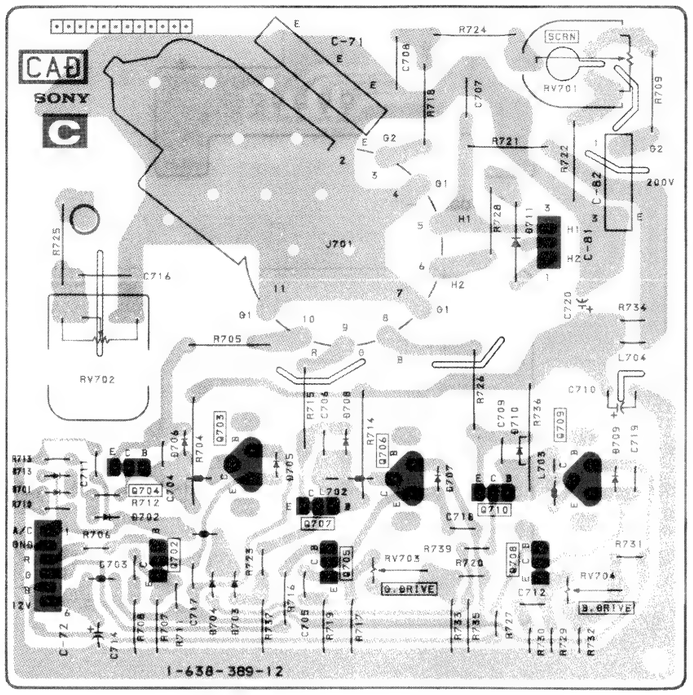
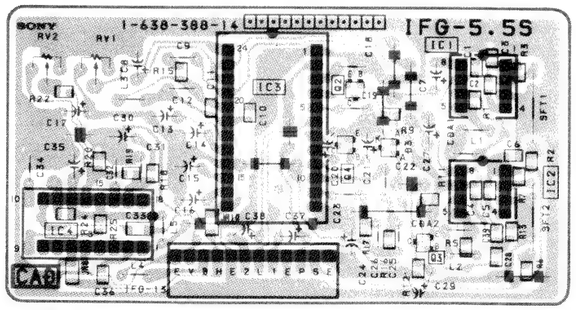
C [R.G.B. OUT] **IFG** [SIF]

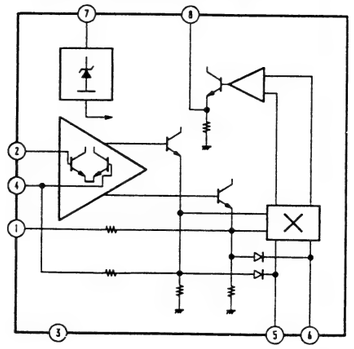
— C Board —



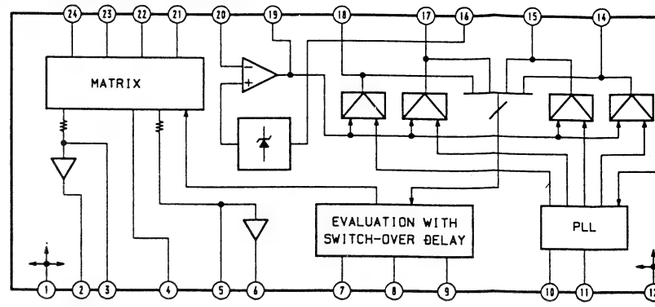
— IFG Board —



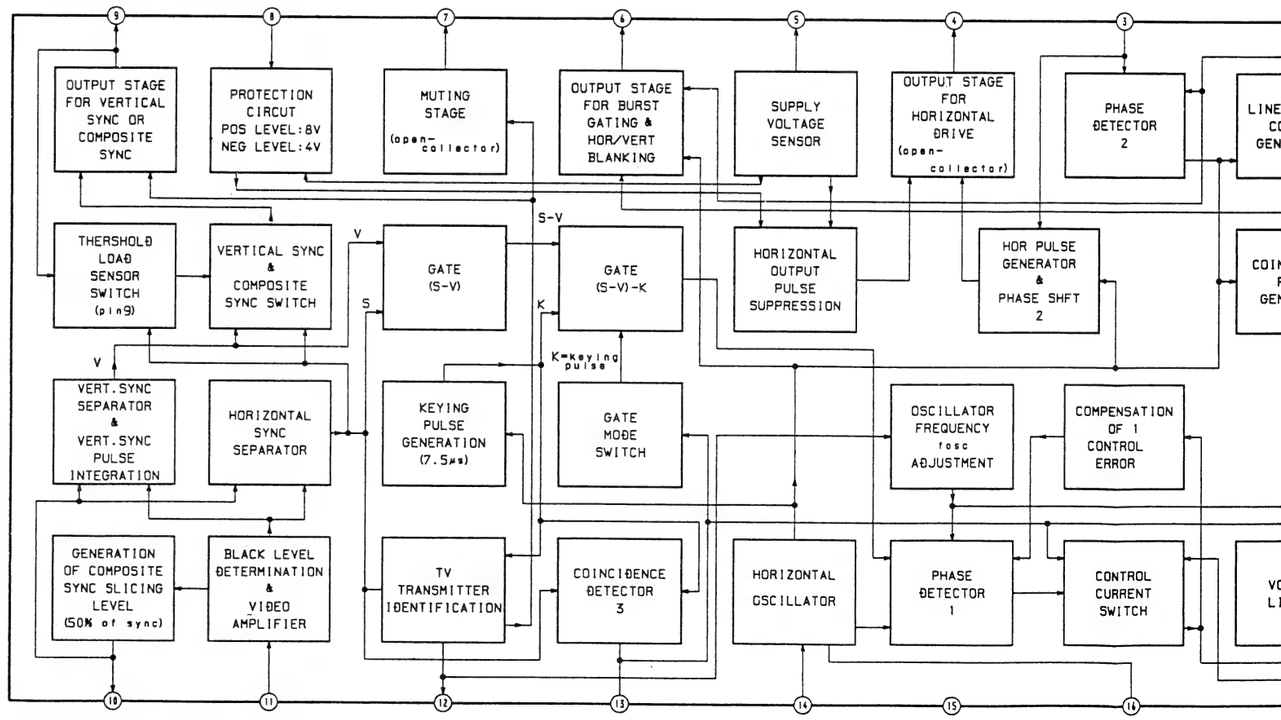
IFG BOARD IC1, IC2 TBA129



IFG BOARD IC3 TDA6600

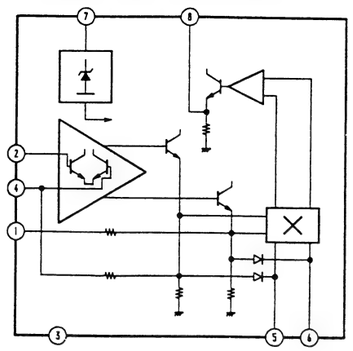


IFG BOARD IC4 TDA2595

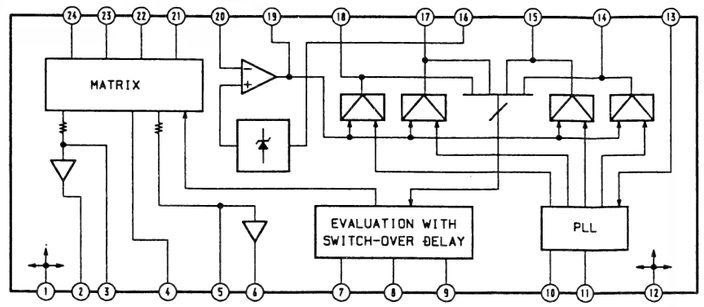


KV-H2511D
MDR-IF310/RM-816

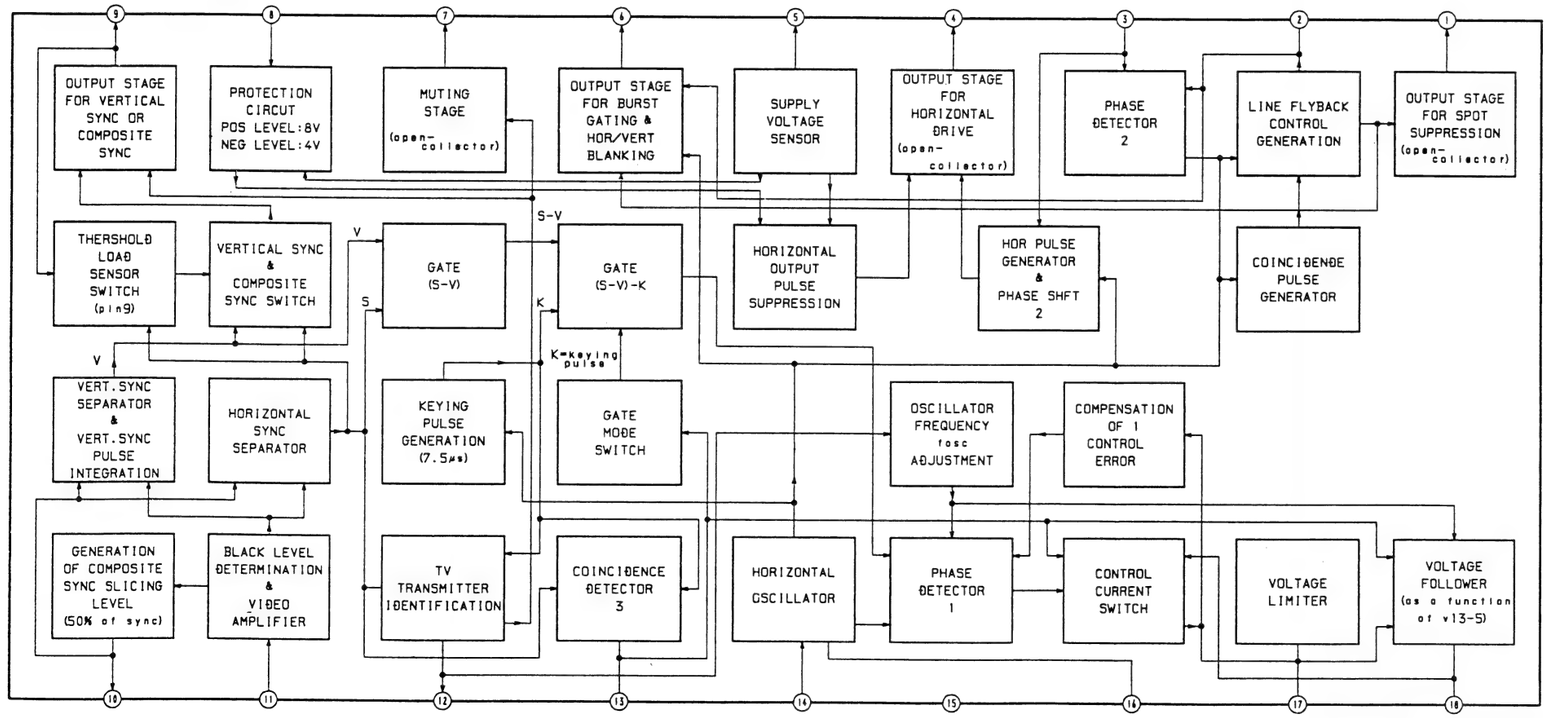
IFG BOARD IC1, IC2 TBA129



IFG BOARD IC3 TDA6600



IFG BOARD IC4 TDA2595

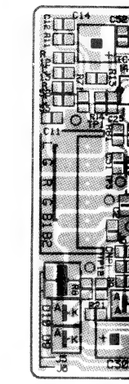


KV-H2511D
MDR-IF310/RM-816

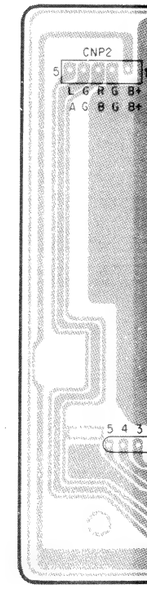
KV-H2511D
MDR-IF310/RM-816

MAIN [MC

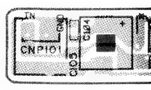
— MAIN Boar

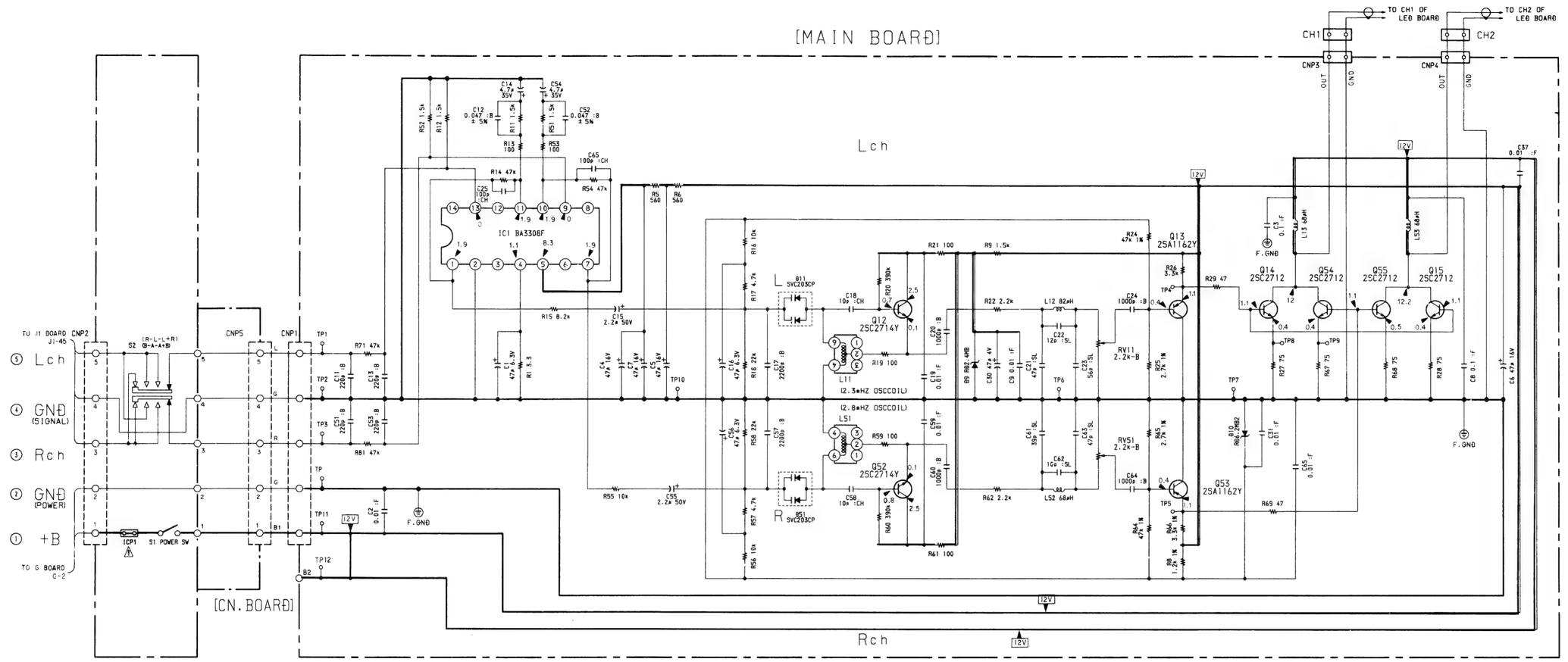


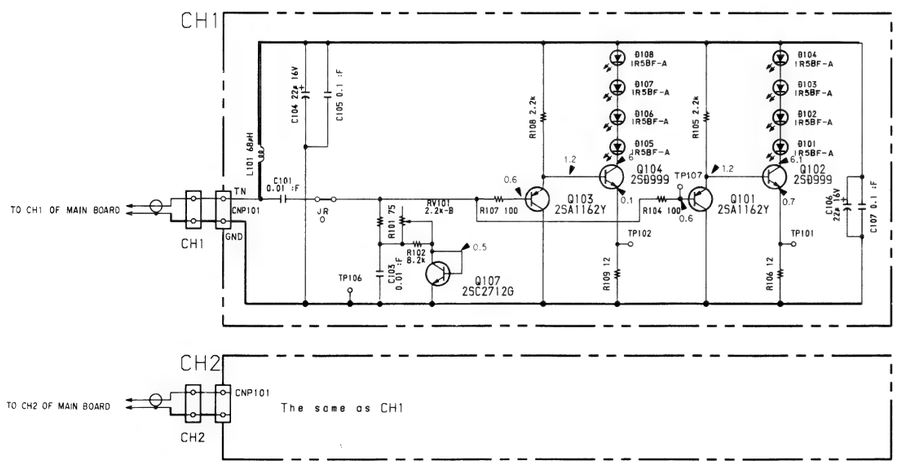
— SW Board

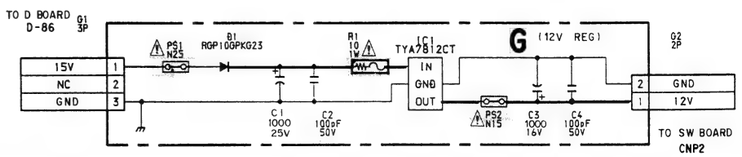


— LED Board





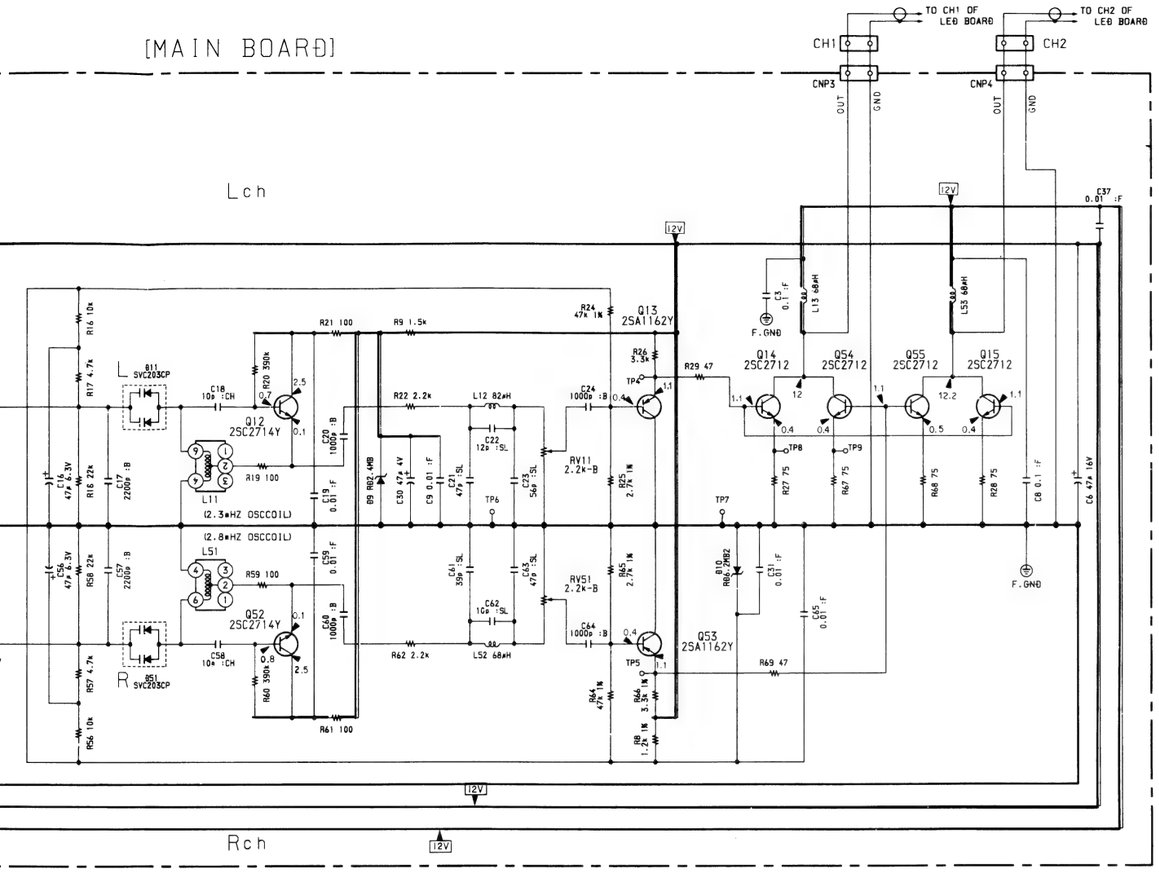


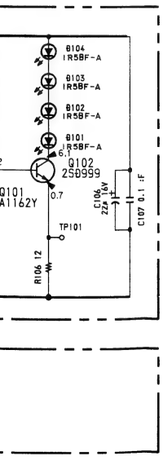


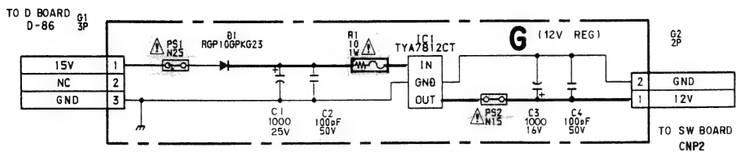
KV-H2511D
MDR-IF310/RM-816

7 8 9 10 11 12 13 14 15

[MAIN BOARD]

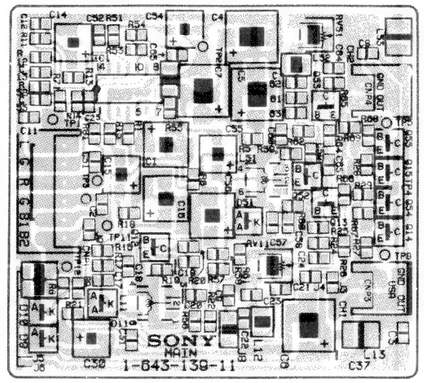




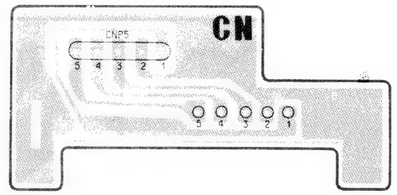


MAIN [MODULATOR] **SW** **LED** [EMITTER] **CN** [CONNECTOR] **G** [12V REG]

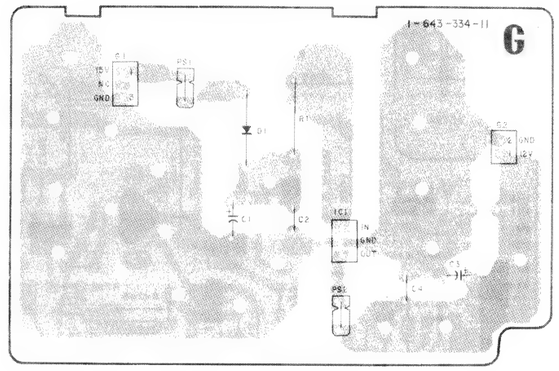
— MAIN Board —



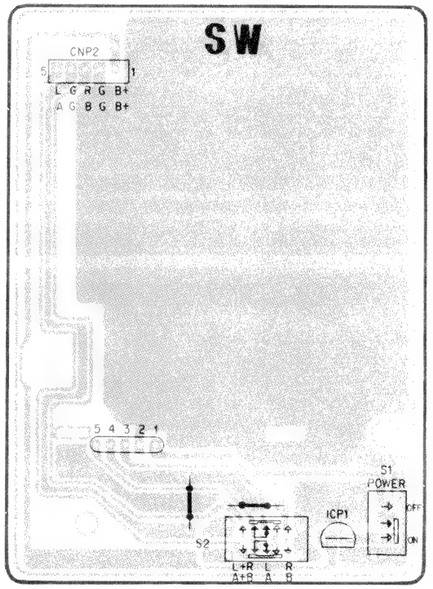
— CN Board —



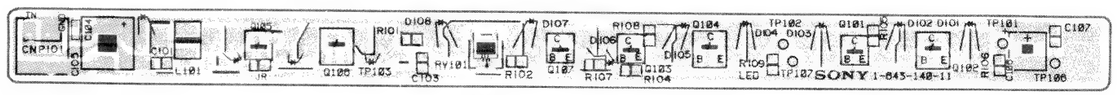
— G Board —



— SW Board —

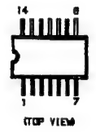


— LED Board —

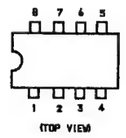


5-4. SEMICONDUCTORS

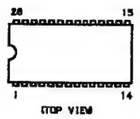
BA3308F



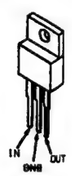
BA4558
NE5532P
RC4558P
SΘA2546
TBA129
TΘA1543
TEA2014A
TEA2031A



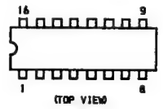
CXA1114P
CXK5864BP-10L
FCB61C65L-70P
MAB8461P-W208
SAA7280P/M3
TC5565APL-15L
TΘA4580-V7
TΘA4650/V4
TΘA6200
TEA2028B



LM7812CT
MC7812CT
TΘA8341/N6
TEA7605
TYA7812CT



MC14051BCP
MC14052BCP
MC14053BCP
PCF8574
TΘA2545A-V4
TΘA4510/V8
TΘA4660V2
TΘA8442-N3
TEA2260
μPΘ4053BC

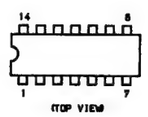


SAA5246P/E

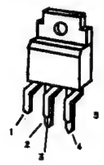
SBX1610-11

SΘA20162-B002
SΘA20560-A012

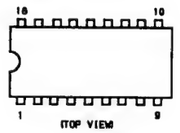
SN74LS02N



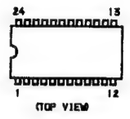
TΘA2050



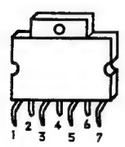
TΘA2595/V9



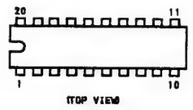
TΘA6600-2



TΘA8170



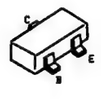
TΘA8732



BF199
2SA1091

BF871
2SΘ774-34

ΘTA144EK
ΘTC114EK
ΘTC124EK
ΘTC144EK
MMST2907A
2SA1037K
2SA1162
2SA1623
2SA812
2SB1295
2SC1623
2SC2412K
2SC2712
2SC2714



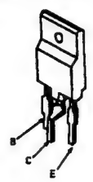
ΘTA144ES
ΘTC144ES

JC501
2SC2785

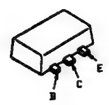
2SA1220A-P
2SB1357T114EF
2SC2688-LK

2SB734
2SΘ773
2SΘ774

2SΘ1548-LB
2SΘ1941-06



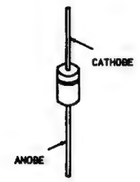
2SΘ1664
2SΘ999



2SΘ2096-EF

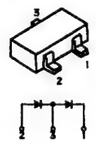
2SΘ789-34

BB405B
BB809
ERC06-15S
ERC25-06S
RGP10GPKG23
RU-3AM

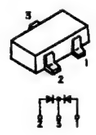


CTU-12S

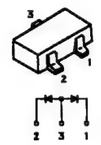
ΘA204K
1SS226



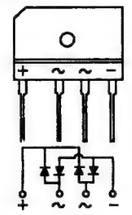
ΘAN202K



ΘAP202K



Θ4SB60L-F



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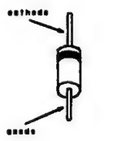
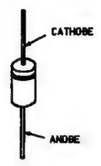
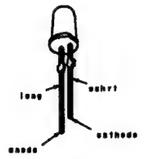


EGP20G

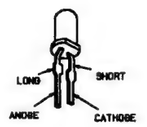
GPO8Θ
RGP15J



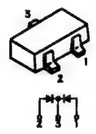
IR5BF-A



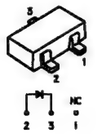
LΘ-201VR



MA152WK
SVC203CP
1S2837

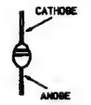


MA3036H
MA3056M
MA3068M
RΘ2.4M-B
RΘ3.6M-B2
RΘ5.6M-B2
RΘ6.2M-B2
RΘ6.8M-B2



MTZJ-11C
MTZJ-13B
MTZJ-15A
MTZJ-33A
MTZJ-36Θ
MTZJ-3.9B
MTZJ-4.7B
MTZJ-5.6B
MTZJ-5.6C
MTZJ-6.2B
MTZJ-6.8C
MTZJ-7.5C
MTZJ-9.1C
MTZN-10C
RΘ11ESB3
RΘ5.6ESB2
RΘ6.2ESB2
RΘ6.8ESB2
RΘ7.5ESB2
RΘ9.1ESB3
UZ-4.7BSC
1SS119
1SS133

U05G



KV-H2511D
MDR-IF310/RM-816

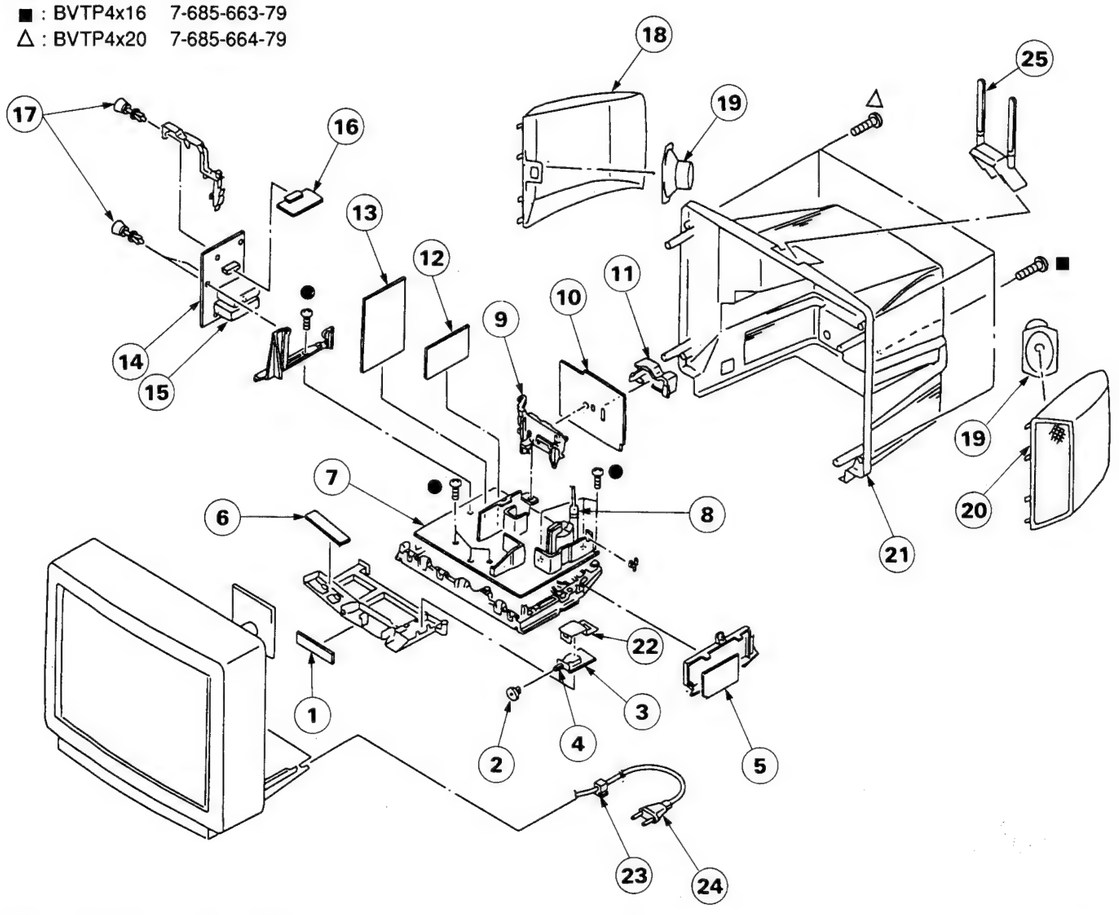
SECTION 6
EXPLODED VIEWS

NOTE:
- Items with no part-number and no description are not stocked because they are seldom required for routine servicing.
- The sub-parts required to make a pre-assembled part are indicated by collation numbers in the remark column.
- Items marked "*" are not stocked because they are seldom required for routine servicing. Some delay should be expected when ordering these items.

Components identified by shading and marked ⚠ are critical for safety.
Replace only with the part number specified.

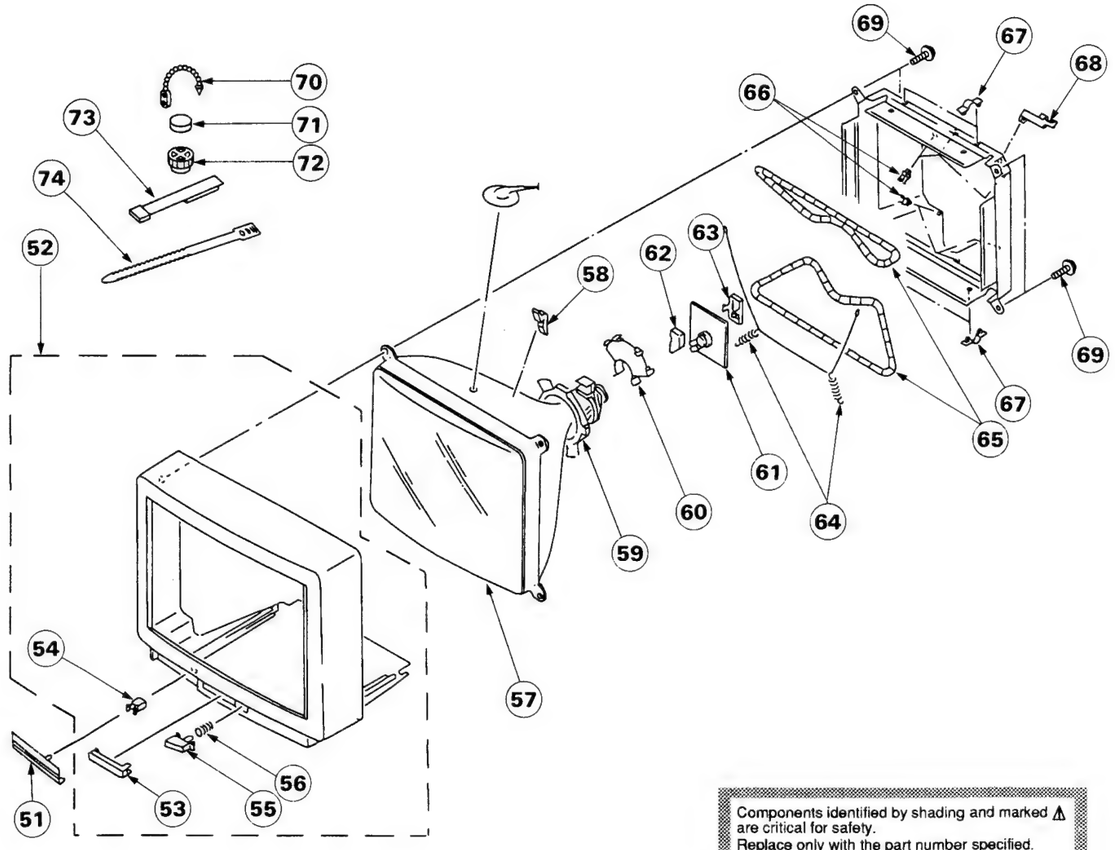
6-1. CHASSIS

● : BVTP3x12 7-685-648-79
■ : BVTP4x16 7-685-663-79
△ : BVTP4x20 7-685-664-79



REF.NO.	PART NO.	DESCRIPTION	REMARK
1	*1-638-392-11	H2 BOARD	
2	4-386-611-01	COVER, SWITCH	
3	*1-638-390-11	F BOARD	
4	⚠1-571-433-12	SWITCH, PUSH (AC POWER)	
5	*1-643-334-11	G BOARD	
6	*1-638-391-11	H1 BOARD	
7	*A-1642-072-A	D BOARD, COMPLETE	
8	⚠1-439-416-51	TRANSFORMER ASSY, FLYBACK (UX-1650)	
9	*4-386-624-11	BRACKET, J	
10	*A-1651-031-A	J1 BOARD, COMPLETE	
11	4-200-014-01	BRACKET, TERMINAL	
12	*A-1645-013-A	V BOARD, COMPLETE	
13	*A-1621-033-A	B BOARD, COMPLETE	
14	*A-1632-022-A	A BOARD, COMPLETE	
15	⚠1-465-301-11	TUNER, BT (UV-816(PLL))	
16	*A-1654-004-A	IFG BOARD, COMPLETE	
17	4-386-618-01	RIVET, T TYPE	
18	X-4200-088-3	BAFFLE (L) ASSY, BOARD	
19	1-544-727-11	SPEAKER (7.5X13CM)	
20	X-4200-087-3	BAFFLE (R) ASSY, BOARD	
21	4-034-786-11	COVER, REAR	
22	4-200-757-01	COVER, POWER SWITCH	
23	⚠4-389-201-03	HOLDER, AC CORD	
24	⚠1-590-501-11	CORD, POWER (WITH NOISE FILTER)	
25	8-913-822-90	TRANSMITTER TMR-D1003 SET	

6-2. PICTURE TUBE

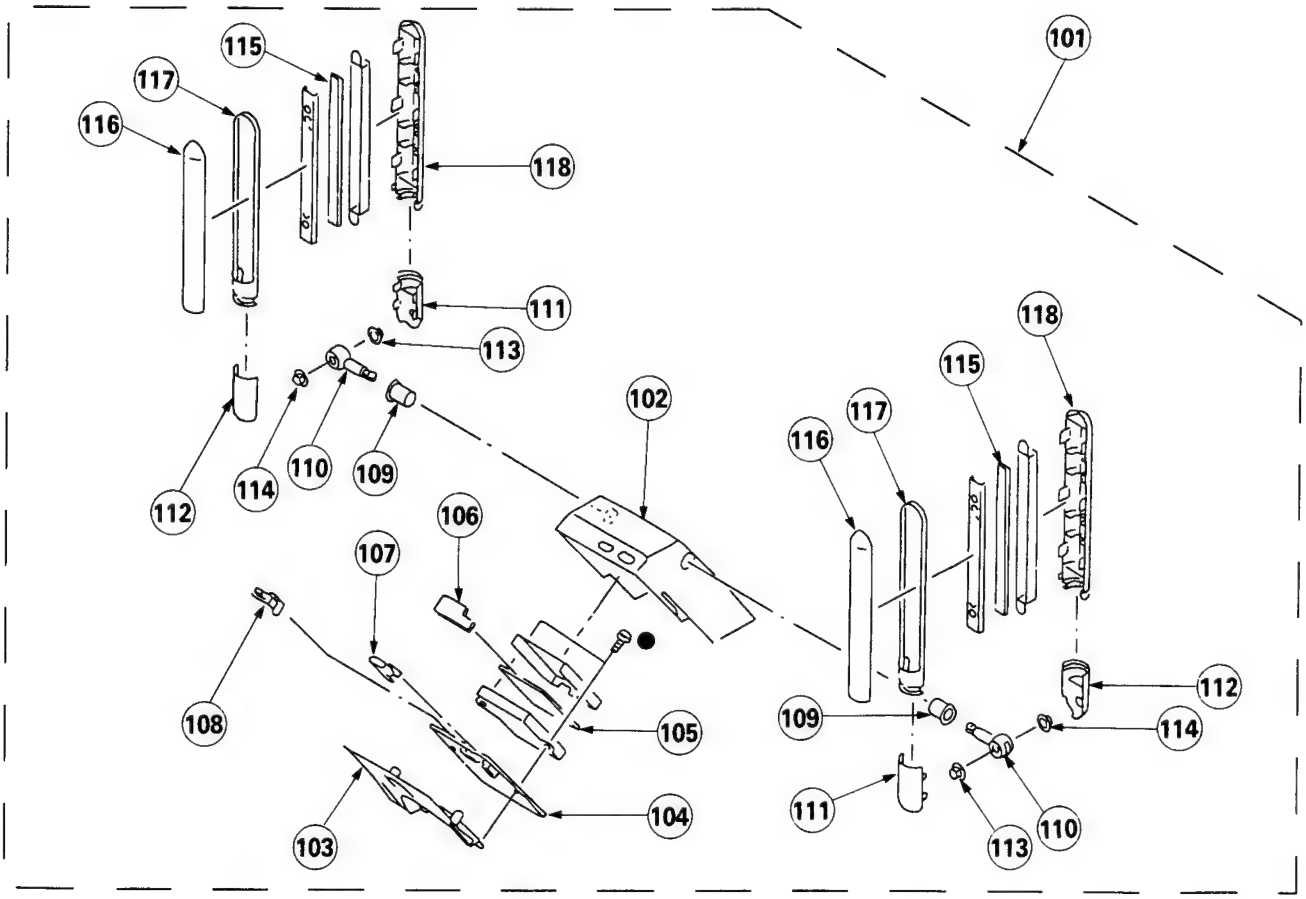


Components identified by shading and marked ⚠ are critical for safety.
Replace only with the part number specified.

REF.NO.	PART NO.	DESCRIPTION	REMARK
51	4-200-889-31	DOOR	
52	X-4030-156-4	CABINET ASSY (WITH BEZEL ASSY)	53~56
53	4-200-148-01	WINDOW, ORNAMENTAL	
54	4-392-036-01	CATCHER, PUSH	
55	4-200-886-01	BUTTON, POWER	
56	4-329-112-51	SPRING	
57	⚠ 8-733-231-05	PICTURE TUBE (A59JWC61X)	
58	3-704-495-01	SPACER, DY	
59	⚠1-451-311-21	DEFLECTION YOKE (Y25FXA)	
60	*4-385-422-01	HOLDER, LEAD	
61	*A-1638-011-A	C BOARD, COMPLETE	
62	*4-379-167-01	COVER (MAIN), CV	
63	*4-379-160-01	COVER (REAR LID), CV	
64	4-303-774-99	SPRING	
65	⚠1-460-091-11	COIL DEGAUSS	
66	4-034-296-01	HOLDER, DGC	
67	*4-385-916-01	HOLDER (D)	
68	*4-387-284-01	HOLDER, LEAD	
69	4-036-188-01	SCREW (M), PT	
70	4-308-870-00	CLIP, LEAD WIRE	
71	1-452-032-00	MAGNET, DISK; 10MM ϕ	
72	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM ϕ	
73	X-4387-214-1	PERMALLOY ASSY, CORRECTION	
74	3-701-007-00	BAND, BINDING	

6-3. TRANSMITTER

● : BVTP3x12 7-685-648-79



REF.NO.	PART NO.	DESCRIPTION	REMARK
101	A-4546-030-A	OVERALL ASSY	102~118
102	*4-035-887-01	COVER, MODULATOR	
103	*4-035-888-01	BRACKET, MODULATOR	
104	*1-643-141-11	SW BOARD	
105	*A-4542-098-A	MAIN BOARD, COMPLETE	
106	*1-643-965-11	CN BOARD	
107	4-035-878-01	BUTTON, PUSH	
108	4-035-879-01	BUTTON, SLIDE	
109	4-035-882-01	BEARING	
110	4-035-881-01	JOINT	
111	4-035-883-01	COVER (A), JOINT	
112	4-035-884-01	COVER (B), JOINT	
113	4-035-886-01	DISK (B)	
114	4-035-885-01	DISK (A)	
115	*1-643-140-11	LED BOARD	
116	4-035-877-01	COVER, LED	
117	4-035-876-01	FRAME, EMITTER	
118	4-035-875-01	HOLDER, EMITTER	

B

SECTION 7
ELECTRICAL PARTS LIST

NOTE:

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

- Items marked "*" are not stocked because they are seldom required for routine servicing. Some delay should be expected when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise stated.

When indicating parts by reference number, please include the board name.

CAPACITORS
- MF: μF, PF: μμF

COILS
- MMH: mH, UH: μH

RESISTORS
- All resistor values are in Ohms
- F: non-flammable

REF.NO.	PART NO.	DESCRIPTION			REMARK
	*A-1621-033-A	B BOARD, COMPLETE			
		**********			
		<CONNECTOR>			
B31	*1-565-393-11	CONNECTOR, BOARD TO BOARD			
B32	*1-565-393-11	CONNECTOR, BOARD TO BOARD			
B33	*1-565-393-11	CONNECTOR, BOARD TO BOARD			
B72	*1-568-881-51	PIN, CONNECTOR 6P			
		<CAPACITOR>			
C301	1-137-031-11	FILM	0.22MF	10%	100V
C302	1-137-031-11	FILM	0.22MF	10%	100V
C303	1-124-122-11	ELECT	100MF	20%	50V
C304	1-137-031-11	FILM	0.22MF	10%	100V
C305	1-124-119-00	ELECT	330MF	20%	16V
C306	1-124-902-00	ELECT	0.47MF	20%	50V
C307	1-124-902-00	ELECT	0.47MF	20%	50V
C308	1-124-902-00	ELECT	0.47MF	20%	50V
C309	1-124-902-00	ELECT	0.47MF	20%	50V
C310	1-137-098-11	FILM	0.1MF	10%	100V
C311	1-137-098-11	FILM	0.1MF	10%	100V
C312	1-124-902-00	ELECT	0.47MF	20%	50V
C313	1-124-902-00	ELECT	0.47MF	20%	50V
C314	1-124-902-00	ELECT	0.47MF	20%	50V
C315	1-124-903-11	ELECT	1MF	20%	50V
C316	1-137-098-11	FILM	0.1MF	10%	100V
C317	1-124-910-11	ELECT	47MF	20%	50V
C318	1-137-098-11	FILM	0.1MF	10%	100V
C321	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C323	1-102-947-00	CERAMIC	10PF	0.5PF	50V
C327	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C330	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C331	1-137-098-11	FILM	0.1MF	10%	100V
C332	1-126-103-11	ELECT	470MF	20%	16V
C333	1-137-102-11	FILM	0.022MF	10%	250V
C334	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C335	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C336	1-102-816-00	CERAMIC	120PF	5%	50V
C337	1-101-004-00	CERAMIC	0.01MF		50V
C338	1-137-098-11	FILM	0.1MF	10%	100V
C339	1-137-098-11	FILM	0.1MF	10%	100V
C341	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C343	1-137-094-11	FILM	0.047MF	10%	100V
C344	1-137-033-11	FILM	0.33MF	10%	100V
C345	1-163-123-00	CERAMIC CHIP	180PF	5%	50V
C346	1-163-033-00	CERAMIC CHIP	0.022MF		50V
C347	1-124-903-11	ELECT	1MF	20%	50V
C348	1-124-903-11	ELECT	1MF	20%	50V
C349	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C350	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C351	1-137-102-11	FILM	0.022MF	10%	250V
C352	1-137-102-11	FILM	0.022MF	10%	250V
C353	1-163-063-00	CERAMIC CHIP	0.022MF	10%	50V
C354	1-124-910-11	ELECT	47MF	20%	50V
C357	1-163-377-11	CERAMIC CHIP	100PF	5%	50V
C358	1-124-917-11	ELECT	33MF	20%	50V
C359	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C360	1-101-004-00	CERAMIC	0.01MF		50V
C364	1-163-105-00	CERAMIC CHIP	33PF	5%	50V
C365	1-124-910-11	ELECT	47MF	20%	50V
C366	1-126-103-11	ELECT	470MF	20%	16V
C367	1-101-004-00	CERAMIC	0.01MF		50V
C381	1-124-902-00	ELECT	0.47MF	20%	50V
C382	1-124-927-11	ELECT	4.7MF	20%	50V
C384	1-124-910-11	ELECT	47MF	20%	50V
C385	1-124-927-11	ELECT	4.7MF	20%	50V
C387	1-137-027-11	FILM	0.82MF	10%	63V
C388	1-137-098-11	FILM	0.1MF	10%	100V
C401	1-101-361-00	CERAMIC	150PF	5%	50V
C402	1-163-197-00	CERAMIC CHIP	470PF	5%	50V
C403	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C1311	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C1312	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C1313	1-102-953-00	CERAMIC	18PF	5%	50V
		<TRIMMER>			
CT331	1-141-418-11	CAP, ADJ			
CT332	1-141-418-11	CAP, ADJ			
		<DIODE>			
D301	8-719-911-19	DIODE 1SS119			
D302	8-719-911-19	DIODE 1SS119			
D303	8-719-911-19	DIODE 1SS119			
D304	8-719-911-19	DIODE 1SS119			
D305	8-719-911-19	DIODE 1SS119			
D307	8-719-110-23	DIODE RD11ES-B3			
D309	8-719-911-19	DIODE 1SS119			
D310	8-719-110-23	DIODE RD11ES-B3			
D311	8-719-110-23	DIODE RD11ES-B3			
D312	8-719-110-23	DIODE RD11ES-B3			
D313	8-719-911-19	DIODE 1SS119			
D314	8-719-911-19	DIODE 1SS119			
D315	8-719-911-19	DIODE 1SS119			
D316	8-719-911-19	DIODE 1SS119			
D317	8-719-911-19	DIODE 1SS119			
D318	8-719-911-19	DIODE 1SS119			
D319	8-719-911-19	DIODE 1SS119			
D320	8-719-911-19	DIODE 1SS119			
D331	8-719-911-19	DIODE 1SS119			

REF.NO.	PART NO.	DESCRIPTION				REMARK
D332	8-719-911-19	DIODE 1SS119				
D333	8-719-911-19	DIODE 1SS119				
D350	8-719-109-89	DIODE RD5.6ES-B2				
		<DELAY LINE>				
DL332	1-236-062-11	MODULE, Y DELAY LINE				
DL401	1-415-613-11	DELAY LINE, Y				
		<IC>				
IC301	8-759-517-43	IC TDA4580-V7				
IC302	8-759-980-60	IC TDA8442N3				
IC303	8-759-140-53	IC UPD4053BC				
IC331	8-759-521-22	IC TDA4650/V4				
IC332	8-759-505-39	IC TDA4660V2				
		<COIL>				
L301	1-410-868-11	INDUCTOR	4.7UH			
L302	1-410-868-11	INDUCTOR	4.7UH			
L303	1-408-406-00	INDUCTOR	5.6UH			
L331	1-404-554-11	COIL				
L336	1-404-554-11	COIL				
L338	1-408-409-00	INDUCTOR	10UH			
L1301	1-408-425-00	INDUCTOR	220UH			
L1302	1-408-419-00	INDUCTOR	68UH			
		<TRANSISTOR>				
Q301	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
Q303	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
Q305	8-729-901-06	TRANSISTOR DTA144EK				
Q306	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q311	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
Q312	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
Q313	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
Q316	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
Q330	8-729-216-22	TRANSISTOR 2SA1162-G				
Q331	8-729-901-00	TRANSISTOR DTC124EK				
Q332	8-729-216-22	TRANSISTOR 2SA1162-G				
Q333	8-729-216-22	TRANSISTOR 2SA1162-G				
Q334	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
Q335	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
Q381	8-729-901-00	TRANSISTOR DTC124EK				
Q382	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
Q1301	8-729-901-00	TRANSISTOR DTC124EK				
Q1306	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
		<RESISTOR>				
JR385	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W	
JR390	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R301	1-249-409-11	CARBON	220	5%	1/4W	
R302	1-249-409-11	CARBON	220	5%	1/4W	
R303	1-249-409-11	CARBON	220	5%	1/4W	
R304	1-249-409-11	CARBON	220	5%	1/4W	
R305	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R307	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R308	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R309	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R310	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R311	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R312	1-249-409-11	CARBON	220	5%	1/4W	
R313	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R314	1-216-182-00	METAL GLAZE	220	5%	1/8W	
R315	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R316	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R317	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R318	1-249-429-11	CARBON	10K	5%	1/4W	
R319	1-249-409-11	CARBON	220	5%	1/4W	
R320	1-216-198-00	METAL GLAZE	1K	5%	1/8W	
R321	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R322	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R328	1-216-311-00	METAL GLAZE	6.8	5%	1/10W	
R329	1-216-311-00	METAL GLAZE	6.8	5%	1/10W	
R330	1-216-311-00	METAL GLAZE	6.8	5%	1/10W	
R331	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R332	1-216-184-00	METAL GLAZE	270	5%	1/8W	
R333	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R334	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R335	1-247-852-11	CARBON	7.5K	5%	1/4W	
R336	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R337	1-216-184-00	METAL GLAZE	270	5%	1/8W	
R338	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R339	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R341	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R342	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R344	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R346	1-216-202-00	METAL GLAZE	1.5K	5%	1/8W	
R347	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R348	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R349	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R350	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R351	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R354	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R355	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R356	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R358	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R359	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R360	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R361	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R363	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R364	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R365	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R366	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R367	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R370	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R372	1-216-023-00	METAL GLAZE	82	5%	1/10W	
R376	1-249-429-11	CARBON	10K	5%	1/4W	
R377	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R378	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R379	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R380	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R381	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R382	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R383	1-216-115-00	METAL GLAZE	560K	5%	1/10W	
R384	1-216-029-00	METAL GLAZE	150	5%	1/10W	
R385	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R387	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R388	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R389	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R390	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R392	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R393	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R394	1-216-021-00	METAL GLAZE	68	5%	1/10W	
R395	1-216-214-00	METAL GLAZE	4.7K	5%	1/8W	
R396	1-216-041-00	METAL GLAZE	470	5%	1/10W	

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REF.NO.	PART NO.	DESCRIPTION				REMARK
R398	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R401	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R402	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R403	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R404	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R405	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R406	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R407	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R410	1-216-184-00	METAL GLAZE	270	5%	1/8W	
R412	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R1301	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R1305	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R1307	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R1308	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R1309	1-216-037-00	METAL GLAZE	330	5%	1/10W	
		<VARIABLE RESISTOR>				
RV331	1-238-012-11	RES, ADJ, CARBON 1K				
		<CRYSTAL>				
X331	1-567-307-11	OSCILLATOR, CRYSTAL				
X332	1-567-131-00	OSCILLATOR, CRYSTAL				
		**********				
	*1-638-390-11	F BOARD				
		*******				
	*4-341-752-01	EYELET				
		<CONNECTOR>				
F61	*1-580-844-11	PIN, CONNECTOR (POWER)				
F62	*1-580-844-11	PIN, CONNECTOR (POWER)				
		<FUSE>				
F1601⚠	1-576-231-21	FUSE (H.B.C.) 4A/250V				
	1-533-230-11	HOLDER, FUSE; F1601				
		<SWITCH>				
S1701⚠	1-571-433-12	SWITCH, PUSH (AC POWER)				
		**********				
	*A-1632-022-A	A BOARD, COMPLETE				
		**********				
		<CONNECTOR>				
A11	*1-565-393-11	CONNECTOR, BOARD TO BOARD				
A12	*1-565-393-11	CONNECTOR, BOARD TO BOARD				
A13	*1-565-503-11	CONNECTOR, BOARD TO BOARD 12P				
A16	*1-560-290-00	PLUG, CONNECTOR (2.5MM PITCH)				
A17	*1-564-886-11	PLUG, CONNECTOR 9P				
A19	*1-564-881-11	PLUG, CONNECTOR 4P				
		<CAPACITOR>				
C101	1-126-233-11	ELECT	22MF	20%	50V	
C102	1-126-103-11	ELECT	470MF	20%	16V	
C104	1-124-910-11	ELECT	47MF	20%	50V	
C106	1-126-233-11	ELECT	22MF	20%	50V	
C108	1-136-165-00	FILM	0.1MF	5%	50V	
C109	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C111	1-124-925-11	ELECT	2.2MF	20%	50V	
C115	1-124-925-11	ELECT	2.2MF	20%	50V	
C127	1-124-122-11	ELECT	100MF	20%	50V	
C128	1-124-910-11	ELECT	47MF	20%	50V	
C129	1-124-910-11	ELECT	47MF	20%	50V	
C138	1-136-165-00	FILM	0.1MF	5%	50V	
C171	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	
C172	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	
C177	1-102-074-00	CERAMIC	0.001MF	10%	50V	
C181	1-101-004-00	CERAMIC	0.01MF		50V	
		<IC>				
IC103	8-759-979-62	IC PCF8574				
		<COIL>				
L100	1-410-683-31	INDUCTOR	560UH			
L101	1-408-225-00	INDUCTOR	3.3UH			
L102	1-408-413-00	INDUCTOR	22UH			
L107	1-408-397-00	INDUCTOR	1UH			
		<TRANSISTOR>				
Q113	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
Q114	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
Q115	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
Q116	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
Q125	8-729-900-89	TRANSISTOR DTC144ES				
Q126	8-729-901-06	TRANSISTOR DTA144EK				
Q181	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
		<RESISTOR>				
JR230	1-216-295-00	METAL GLAZE	0	5%	1/10W	
JR252	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR253	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR255	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR256	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR257	1-216-296-00	METAL GLAZE	0	5%	1/8W	
JR258	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R101	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R105	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R107	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R108	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R110	1-249-429-11	CARBON	10K	5%	1/4W	
R111	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R116	1-216-023-00	METAL GLAZE	82	5%	1/10W	
R118	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R128	1-216-027-00	METAL GLAZE	120	5%	1/10W	
R129	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R130	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R157	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R158	1-249-409-11	CARBON	220	5%	1/4W	
R159	1-249-409-11	CARBON	220	5%	1/4W	
R161	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R162	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R163	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R164	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R165	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R167	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	

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REF.NO.	PART NO.	DESCRIPTION				REMARK
R168	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R169	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R181	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R182	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R193	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R194	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R195	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R196	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
		<TUNER>				
TU101	⚠1-465-301-11	TUNER, ET (UV-816(PLL))				
		<IF BLOCK>				
VIF101	1-466-154-11	IF BLOCK (IFG-389S)				
		**********				
	*1-643-334-11	G BOARD				
		*******				
		<CAPACITOR>				
C01	1-124-557-11	ELECT	1000MF	20%	25V	
C02	1-102-973-00	CERAMIC	100PF	5%	50V	
C03	1-124-360-00	ELECT	1000MF	20%	16V	
C04	1-102-973-00	CERAMIC	100PF	5%	50V	
C07	1-124-557-11	ELECT	1000MF	20%	25V	
		<DIODE>				
D1	8-719-300-33	DIODE RU-3AM				
		<CONNECTOR>				
G1	*1-568-878-51	PIN, CONNECTOR 3P				
G2	*1-568-878-51	PIN, CONNECTOR 3P				
		<IC>				
IC01	8-759-037-26	IC TYA7812CT				
		<IC LINK>				
PS1	⚠1-532-637-91	LINK, IC 1A				
PS2	⚠1-532-605-91	LINK, IC 0.4A				
		<RESISTOR>				
R1	⚠1-213-060-51	FUSIBLE	10	5%	1W	F
		**********				
	*A-1638-011-A	C BOARD, COMPLETE				
		**********				
	*4-379-160-01	COVER (REAR LID), CV				
	*4-379-167-01	COVER (MAIN), CV				
		<CONNECTOR>				
C71	*1-506-371-00	PIN, CONNECTOR 2P				
C72	*1-568-881-51	PIN, CONNECTOR 6P				
C81	*1-568-878-51	PIN, CONNECTOR 3P				
C82	*1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P				

REF.NO.	PART NO.	DESCRIPTION				REMARK
		<CAPACITOR>				
C703	1-102-980-00	CERAMIC	270PF	5%	50V	
C704	1-102-116-00	CERAMIC	680PF	10%	50V	
C705	1-102-978-00	CERAMIC	220PF	5%	50V	
C706	1-102-116-00	CERAMIC	680PF	10%	50V	
C707	1-162-116-00	CERAMIC	680PF	10%	2KV	
C708	1-162-114-00	CERAMIC	0.0047MF		2KV	
C709	1-102-116-00	CERAMIC	680PF	10%	50V	
C710	1-123-947-00	ELECT	10MF	20%	250V	
C711	1-101-880-00	CERAMIC	47PF	5%	50V	
C712	1-102-980-00	CERAMIC	270PF	5%	50V	
C714	1-124-360-00	ELECT	1000MF	20%	16V	
C716	1-162-622-11	CERAMIC	330PF	10%	400V	
C717	1-102-114-00	CERAMIC	470PF	10%	50V	
C718	1-102-114-00	CERAMIC	470PF	10%	50V	
C719	1-102-114-00	CERAMIC	470PF	10%	50V	
		<DIODE>				
D701	8-719-110-14	DIODE RD9.1ES-B3				
D702	8-719-911-19	DIODE 1SS119				
D703	8-719-911-19	DIODE 1SS119				
D704	8-719-911-19	DIODE 1SS119				
D705	8-719-911-19	DIODE 1SS119				
D706	8-719-911-19	DIODE 1SS119				
D707	8-719-911-19	DIODE 1SS119				
D708	8-719-911-19	DIODE 1SS119				
D709	8-719-911-19	DIODE 1SS119				
D710	8-719-911-19	DIODE 1SS119				
D711	8-719-300-33	DIODE RU-3AM				
D713	8-719-911-19	DIODE 1SS119				
		<JACK>				
J701	1-526-990-11	SOCKET, PICTURE TUBE				
		<COIL>				
L704	1-408-415-00	INDUCTOR	33UH			
		<TRANSISTOR>				
Q702	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q703	8-729-906-70	TRANSISTOR BF871				
Q704	8-729-200-17	TRANSISTOR 2SA1091-O				
Q705	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q706	8-729-906-70	TRANSISTOR BF871				
Q707	8-729-200-17	TRANSISTOR 2SA1091-O				
Q708	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q709	8-729-906-70	TRANSISTOR BF871				
Q710	8-729-200-17	TRANSISTOR 2SA1091-O				
		<RESISTOR>				
R704	1-216-486-00	METAL OXIDE	8.2K	5%	3W	F
R705	1-202-824-00	SOLID	3.3K	10%	1/2W	
R706	1-249-409-11	CARBON	220	5%	1/4W	
R707	1-249-412-11	CARBON	390	5%	1/4W	
R708	1-249-401-11	CARBON	47	5%	1/4W	
R709	1-202-844-00	SOLID	330K	10%	1/2W	
R710	1-215-465-00	METAL	68K	1%	1/4W	
R711	1-249-426-11	CARBON	5.6K	5%	1/4W	

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REF.NO.	PART NO.	DESCRIPTION				REMARK
R712	1-249-417-11	CARBON	1K	5%	1/4W	
R713	1-215-471-00	METAL	120K	1%	1/4W	
R714	1-216-486-00	METAL OXIDE	8.2K	5%	3W	F
R715	1-202-824-00	SOLID	3.3K	10%	1/2W	
R716	1-249-409-11	CARBON	220	5%	1/4W	
R717	1-249-415-11	CARBON	680	5%	1/4W	
R718	1-202-814-11	SOLID	33K	10%	1/2W	
R719	1-249-401-11	CARBON	47	5%	1/4W	
R720	1-249-423-11	CARBON	3.3K	5%	1/4W	
R721	1-202-842-11	SOLID	220K	10%	1/2W	
R722	1-202-848-00	SOLID	680K	10%	1/2W	
R723	1-249-417-11	CARBON	1K	5%	1/4W	
R724	1-202-846-00	SOLID	470K	10%	1/2W	
R725	1-202-838-00	SOLID	100K	10%	1/2W	
R726	1-202-824-00	SOLID	3.3K	10%	1/2W	
R727	1-249-409-11	CARBON	220	5%	1/4W	
R728	1-216-347-11	METAL OXIDE	0.68	5%	1W	F
R729	1-249-416-11	CARBON	820	5%	1/4W	
R730	1-249-401-11	CARBON	47	5%	1/4W	
R731	1-249-423-11	CARBON	3.3K	5%	1/4W	
R732	1-249-415-11	CARBON	680	5%	1/4W	
R733	1-249-415-11	CARBON	680	5%	1/4W	
R734	1-249-405-11	CARBON	100	5%	1/4W	
R735	1-215-493-00	METAL	1M	1%	1/4W	
R736	1-216-486-00	METAL OXIDE	8.2K	5%	3W	F
R737	1-215-491-00	METAL	820K	1%	1/4W	
R739	1-249-417-11	CARBON	1K	5%	1/4W	

<VARIABLE RESISTOR>

RV701	1-230-641-11	RES, ADJ, METAL GLAZE 2.2M	
RV702 ⚠	1-230-619-11	RES, ADJ, METAL GLAZE 110M	
RV703	1-237-749-11	RES, ADJ, CARBON 2200	
RV704	1-237-749-11	RES, ADJ, CARBON 2200	

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*A-1642-072-A	D BOARD, COMPLETE	
	**********	
4-200-001-01	HOLDER, IC	
4-201-023-01	SPACER, INSULATING	
*4-341-751-01	EYELET	
*4-341-752-01	EYELET	
*4-368-683-01	SPRING	

<CAPACITOR>

C002	1-163-205-00	CERAMIC CHIP	0.001MF	5%	50V
C003	1-124-925-11	ELECT	2.2MF	20%	50V
C004	1-124-120-11	ELECT	220MF	20%	16V
C005	1-124-903-11	ELECT	1MF	20%	50V
C008	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C009	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C010	1-124-120-11	ELECT	220MF	20%	16V
C011	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C013	1-137-098-11	FILM	0.1MF	10%	100V
C014	1-137-098-11	FILM	0.1MF	10%	100V
C015	1-124-902-00	ELECT	0.47MF	20%	50V
C016	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C017	1-137-098-11	FILM	0.1MF	10%	100V
C018	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C019	1-137-094-11	FILM	0.047MF	10%	100V
C021	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C023	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C024	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C027	1-124-910-11	ELECT	47MF	20%	50V
C030	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C031	1-163-081-00	CERAMIC CHIP	0.22MF		25V
C032	1-163-081-00	CERAMIC CHIP	0.22MF		25V
C033	1-163-181-00	CERAMIC CHIP	100PF	5%	50V
C034	1-124-907-11	ELECT	10MF	20%	50V
C251	1-124-903-11	ELECT	1MF	20%	50V
C252	1-126-233-11	ELECT	22MF	20%	50V
C253	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C254	1-137-098-11	FILM	0.1MF	10%	100V
C255	1-124-636-00	ELECT	3300MF	20%	25V
C261	1-124-903-11	ELECT	1MF	20%	50V
C262	1-126-233-11	ELECT	22MF	20%	50V
C263	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C264	1-137-098-11	FILM	0.1MF	10%	100V
C265	1-124-564-11	ELECT	4700MF	20%	25V
C270	1-137-035-11	FILM	0.47MF	10%	100V
C274	1-137-035-11	FILM	0.47MF	10%	100V
C501	1-124-927-11	ELECT	4.7MF	20%	50V
C502	1-124-927-11	ELECT	4.7MF	20%	50V
C503	1-137-049-11	FILM	0.015MF	10%	400V
C504	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C505	1-108-794-11	MYLAR	0.0015MF	5%	50V
C506	1-137-102-11	FILM	0.022MF	10%	250V
C507	1-137-033-11	FILM	0.33MF	10%	100V
C508	1-137-102-11	FILM	0.022MF	10%	250V
C509	1-137-098-11	FILM	0.1MF	10%	100V
C510	1-161-959-00	CERAMIC	22PF	10%	500V
C511	1-108-686-11	MYLAR	0.0033MF	10%	100V
C512	1-137-098-11	FILM	0.1MF	10%	100V
C513	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C514	1-137-031-11	FILM	0.22MF	10%	100V
C515	1-124-903-11	ELECT	1MF	20%	50V
C516	1-108-680-11	MYLAR	0.001MF	10%	100V
C517	1-124-252-00	ELECT	0.33MF	20%	50V
C518	1-124-902-00	ELECT	0.47MF	20%	50V
C519	1-136-173-00	FILM	0.47MF	5%	50V
C520	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C521	1-137-098-11	FILM	0.1MF	10%	100V
C522	1-124-122-11	ELECT	100MF	20%	50V
C523	1-108-680-11	MYLAR	0.001MF	10%	100V
C524	1-108-798-11	MYLAR	0.0033MF	5%	50V
C525	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C526	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C527	1-137-098-11	FILM	0.1MF	10%	100V
C531	1-124-190-00	ELECT	680MF	10%	25V
C532	1-124-122-11	ELECT	100MF	20%	50V
C533	1-137-096-11	FILM	0.068MF	10%	100V
C534	1-124-120-11	ELECT	220MF	20%	16V
C536	1-131-365-00	TANTALUM	10MF	10%	16V
C537	1-124-903-11	ELECT	1MF	20%	50V
C538	1-108-680-11	MYLAR	0.001MF	10%	100V
C539	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C540	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C592	1-124-122-11	ELECT	100MF	20%	50V
C593	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C601 ⚠	1-161-964-61	CERAMIC	0.0047MF		250V
C602 ⚠	1-161-964-61	CERAMIC	0.0047MF		250V
C603 ⚠	1-161-964-61	CERAMIC	0.0047MF		250V
C604 ⚠	1-125-318-11	ELECT(BLOCK)	220MF	20%	400V
C605	1-124-484-11	ELECT	220MF	20%	35V
C606	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C607	1-137-028-11	FILM	1MF	10%	63V

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION			REMARK
C608	1-124-927-11	ELECT	4.7MF	20%	50V
C611	1-124-910-11	ELECT	47MF	20%	50V
C612	1-108-680-11	MYLAR	0.001MF	10%	100V
C613	1-136-539-11	FILM	0.0022MF	3%	2KV
C614	1-102-030-00	CERAMIC	330PF	10%	500V
C615	1-128-142-11	ELECT	1500MF	20%	25V
C616	1-102-030-00	CERAMIC	330PF	10%	500V
C617	1-124-122-11	ELECT	100MF	20%	50V
C618	1-162-115-00	CERAMIC	330PF	10%	2KV
C619	1-128-320-11	ELECT	2200MF	20%	16V
C620	1-136-173-00	FILM	0.47MF	5%	50V
C621	1-124-347-00	ELECT	100MF	20%	160V
C622	1-128-320-11	ELECT	2200MF	20%	16V
C623	1-124-910-11	ELECT	47MF	20%	50V
C624	1-124-122-11	ELECT	100MF	20%	50V
C625	1-124-360-00	ELECT	1000MF	20%	16V
C626	1-124-907-11	ELECT	10MF	20%	50V
C627	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C631	1-124-927-11	ELECT	4.7MF	20%	50V
C632	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C633	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C801	1-126-105-11	ELECT	1000MF	20%	35V
C802	1-102-030-00	CERAMIC	330PF	10%	500V
C804	1-123-948-00	ELECT	22MF	20%	250V
C805	1-162-114-00	CERAMIC	0.0047MF		2KV
C806	1-137-098-11	FILM	0.1MF	10%	100V
C807	1-106-395-00	MYLAR	0.15MF	10%	200V
C810	1-123-024-21	ELECT	33MF		160V
C811	1-136-113-00	FILM	2MF	5%	200V
C812	1-124-634-11	ELECT	1MF	20%	250V
C813	1-102-212-00	CERAMIC	820PF	10%	500V
C814 ⚠	1-161-731-51	CERAMIC	0.001MF	10%	2KV
C815	1-136-111-00	FILM	1MF	5%	200V
C817 ⚠	1-136-565-11	FILM	0.015MF	3%	1.4KV
C818 ⚠	1-129-721-51	FILM	0.039MF	10%	630V
C819 ⚠	1-161-731-51	CERAMIC	0.001MF	10%	2KV
C820	1-137-046-11	FILM	0.0082MF	10%	400V
C821 ⚠	1-162-116-51	CERAMIC	680PF	10%	2KV
C822	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C823	1-137-043-11	FILM	0.0047MF	10%	400V
C824	1-102-212-00	CERAMIC	820PF	10%	500V
C825	1-137-102-11	FILM	0.022MF	10%	250V
C1601 ⚠	1-136-518-11	FILM	0.33MF	20%	300V
C1602 ⚠	1-136-519-11	FILM	0.47MF	20%	300V
C1603 ⚠	1-164-246-61	CERAMIC	0.0022MF	20%	400V
C1605 ⚠	1-164-246-61	CERAMIC	0.0022MF	20%	400V
C1607 ⚠	1-161-964-61	CERAMIC	0.0047MF		250V

<FILTER>

CF001	1-577-364-11	VIBRATOR, CERAMIC
CF501	1-567-888-11	OSCILLATOR, CERAMIC

<CONNECTOR>

D1	*1-568-881-51	PIN, CONNECTOR 6P
D2	*1-568-882-51	PIN, CONNECTOR 7P
D11	*1-565-394-11	PIN, BOARD TO BOARD CONNECTOR
D12	*1-565-394-11	PIN, BOARD TO BOARD CONNECTOR
D18	*1-560-290-00	PLUG, CONNECTOR (2.5MM PITCH)
D21	*1-565-394-11	PIN, BOARD TO BOARD CONNECTOR
D22	*1-565-394-11	PIN, BOARD TO BOARD CONNECTOR
D31	*1-565-394-11	PIN, BOARD TO BOARD CONNECTOR
D32	*1-565-394-11	PIN, BOARD TO BOARD CONNECTOR
D33	*1-565-394-11	PIN, BOARD TO BOARD CONNECTOR
D41	*1-566-367-11	CONNECTOR, HINGE (RECEPTACLE)
D44	*1-568-881-51	PIN, CONNECTOR 6P
D45	*1-568-881-51	PIN, CONNECTOR 6P
D51	*1-566-367-11	CONNECTOR, HINGE (RECEPTACLE)
D62	*1-565-395-11	PIN, CONNECTOR 3P
D65	*1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P
D66	*1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P
D82	*1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P
D83	*1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P
D84	*1-580-798-11	CONNECTOR PIN (DY) 6P
D801	*1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P

<DIODE>

D001	8-719-109-97	DIODE RD6.8ES-B2
D002	8-719-109-97	DIODE RD6.8ES-B2
D003	8-719-911-19	DIODE 1SS119
D005	8-719-109-89	DIODE RD5.6ES-B2
D006	8-719-982-24	DIODE MTZJ-33A
D007	8-719-982-08	DIODE MTZJ-3.9B
D009	8-719-109-89	DIODE RD5.6ES-B2
D010	8-719-921-54	DIODE MTZJ-6.2B
D011	8-719-921-54	DIODE MTZJ-6.2B
D012	8-719-911-19	DIODE 1SS119
D013	8-719-109-97	DIODE RD6.8ES-B2
D271	8-719-921-88	DIODE MTZJ-13B
D272	8-719-911-19	DIODE 1SS119
D501	8-719-911-19	DIODE 1SS119
D504	8-719-911-55	DIODE U05G
D506	8-719-800-76	DIODE 1SS226
D508	8-719-911-19	DIODE 1SS119
D509	8-719-911-19	DIODE 1SS119
D511	8-719-911-55	DIODE U05G
D512	8-719-911-55	DIODE U05G
D513	8-719-010-34	DIODE UZ-4.7BSC
D601 ⚠	8-719-510-63	DIODE D4SB60L-F
D602	8-719-300-33	DIODE RU-3AM
D603	8-719-911-55	DIODE U05G
D604	8-719-911-55	DIODE U05G
D605	8-719-911-55	DIODE U05G
D606	8-719-300-33	DIODE RU-3AM
D607	8-719-300-33	DIODE RU-3AM
D608	8-719-300-33	DIODE RU-3AM
D609	8-719-982-24	DIODE MTZJ-33A
D610	8-719-300-59	DIODE CTU-12S
D611	8-719-900-26	DIODE ERD29-08J
D612	8-719-300-59	DIODE CTU-12S
D613	8-719-979-85	DIODE EGP20G
D614	8-719-979-85	DIODE EGP20G
D616	8-719-921-54	DIODE MTZJ-6.2B
D617	8-719-911-19	DIODE 1SS119
D618	8-719-109-89	DIODE RD5.6ES-B2
D619	8-719-982-24	DIODE MTZJ-33A
D620	8-719-800-76	DIODE 1SS226
D621	8-719-982-24	DIODE MTZJ-33A
D622	8-719-911-19	DIODE 1SS119
D623	8-719-911-19	DIODE 1SS119
D624	8-719-911-19	DIODE 1SS119
D630	8-719-921-91	DIODE MTZJ-15A
D801	8-719-300-33	DIODE RU-3AM
D802	8-719-300-33	DIODE RU-3AM
D803	8-719-976-64	DIODE RGP02-17

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The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION	REMARK
D804	8-719-911-55	DIODE U05G	
D805	8-719-911-55	DIODE U05G	
D806	8-719-945-80	DIODE ERC06-15S	
D807	8-719-945-80	DIODE ERC06-15S	
D808	8-719-900-26	DIODE ERD29-08J	
		<IC>	
IC001	8-759-047-60	IC SDA20560-A012	
IC002	8-759-000-47	IC MC14051BCP	
IC003	8-759-945-58	IC RC4558P	
IC005	8-759-748-56	IC SDA2546	
IC251	8-759-988-94	IC TDA2050	
	4-812-134-00	RIVET NYLON, 3.5; IC251	
IC261	8-759-988-94	IC TDA2050	
	4-812-134-00	RIVET NYLON, 3.5; IC261	
IC501	8-759-970-73	IC TEA2028B	
IC502	8-759-944-57	IC TDA8170	
IC601	8-759-988-95	IC TEA2260	
IC604	8-759-510-52	IC TEA7605	
IC608	8-759-929-62	IC LM7812CT	
		<COIL>	
L501	1-408-225-00	INDUCTOR 3.3UH	
L601	1-420-872-00	COIL, AIR CORE	
L602	1-410-396-41	FERRITE BEAD INDUCTOR	
L603	1-410-396-41	FERRITE BEAD INDUCTOR	
L604	1-410-671-31	INDUCTOR 47UH	
L605	1-459-585-11	COIL (WITH CORE) (DRUM TYPE)	
L606	1-412-529-11	INDUCTOR 22UH	
L607	1-410-671-31	INDUCTOR 47UH	
L803	1-459-104-00	COIL, WITH CORE	
L804	1-408-239-00	INDUCTOR 4.7MMH	
L805	⚠1-459-755-12	COIL, HORIZONTAL LINEARITY	
L806	1-459-111-00	COIL, DRAM CORE (CDI)	
L809	1-420-872-00	COIL, AIR CORE	
L810	⚠1-421-982-12	PMC	
		<TRANSFORMER>	
LF1601	⚠1-421-866-12	LFT	
LF1602	⚠1-421-776-21	LFT	
LF1603	⚠1-421-862-11	LFT	
T601	⚠1-450-038-11	S.R.T	
T602	⚠1-424-277-11	TRANSFORMER, TRIGGER PULSE	
T801	⚠1-437-090-21	HDT	
T802	⚠1-439-416-51	TRANSFORMER ASSY, FLYBACK (UX-1650)	
		<IC LINK>	
PS601	⚠1-532-984-91	LINK, IC 2A	
PS602	⚠1-532-984-91	LINK, IC 2A	
PS603	⚠1-532-679-91	LINK, IC 0.6A	
PS604	⚠1-532-984-91	LINK, IC 2A	
		<TRANSISTOR>	
Q001	8-729-901-01	TRANSISTOR DTC144EK	
Q002	8-729-901-01	TRANSISTOR DTC144EK	
Q003	8-729-216-22	TRANSISTOR 2SA1162-G	
Q004	8-729-216-22	TRANSISTOR 2SA1162-G	
Q005	8-729-901-01	TRANSISTOR DTC144EK	
Q006	8-729-901-01	TRANSISTOR DTC144EK	
Q007	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q008	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q009	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q010	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q251	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q261	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q271	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q502	8-729-216-22	TRANSISTOR 2SA1162-G	
Q505	8-729-140-96	TRANSISTOR 2SD774-34	
Q506	8-729-140-97	TRANSISTOR 2SB734-34	
Q507	8-729-216-22	TRANSISTOR 2SA1162-G	
Q598	8-729-216-22	TRANSISTOR 2SA1162-G	
Q601	8-729-122-03	TRANSISTOR 2SA1220A-P	
Q602	8-729-209-02	TRANSISTOR 2SD1548-LB	
Q603	8-729-122-03	TRANSISTOR 2SA1220A-P	
Q604	8-729-216-22	TRANSISTOR 2SA1162-G	
Q605	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q606	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q607	8-729-920-92	TRANSISTOR 2SD2096-EF	
Q608	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q609	8-729-320-62	TRANSISTOR 2SD789-34	
Q801	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q804	8-729-304-50	TRANSISTOR 2SD1941-06	
Q805	8-729-119-80	TRANSISTOR 2SC2688-LK	

<RESISTOR>

JR1	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR3	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR4	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR7	1-216-296-00	METAL GLAZE	0	5%	1/8W
R001	1-216-041-00	METAL GLAZE	470	5%	1/10W
R002	1-216-041-00	METAL GLAZE	470	5%	1/10W
R003	1-216-198-00	METAL GLAZE	1K	5%	1/8W
R004	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R005	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R006	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R007	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R008	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R009	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R010	1-216-041-00	METAL GLAZE	470	5%	1/10W
R012	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R013	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R014	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R015	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R016	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R017	1-216-689-11	METAL GLAZE	39K	5%	1/10W
R018	1-216-095-00	METAL GLAZE	82K	5%	1/10W
R019	1-216-025-00	METAL GLAZE	100	5%	1/10W
R020	1-216-025-00	METAL GLAZE	100	5%	1/10W
R021	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R022	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R024	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R025	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R026	1-216-182-00	METAL GLAZE	220	5%	1/8W
R027	1-216-025-00	METAL GLAZE	100	5%	1/10W
R028	1-216-025-00	METAL GLAZE	100	5%	1/10W
R029	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R030	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R031	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R032	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R033	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R034	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R035	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R036	1-216-083-00	METAL GLAZE	27K	5%	1/10W

REF.NO.	PART NO.	DESCRIPTION				REMARK
R037	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R038	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R039	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R040	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R041	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R042	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R043	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R044	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R045	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R046	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R047	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R048	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R049	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R050	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R051	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R052	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R053	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R054	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R055	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R056	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R057	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R058	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R059	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R060	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R061	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R062	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R063	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R064	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R065	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R066	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R067	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R068	1-216-174-00	METAL GLAZE	100	5%	1/8W	
R069	1-216-174-00	METAL GLAZE	100	5%	1/8W	
R070	1-216-198-00	METAL GLAZE	1K	5%	1/8W	
R071	1-216-198-00	METAL GLAZE	1K	5%	1/8W	
R072	1-216-222-00	METAL GLAZE	10K	5%	1/8W	
R073	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R075	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R076	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R077	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R078	1-216-198-00	METAL GLAZE	1K	5%	1/8W	
R079	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R080	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R081	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R083	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R084	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R085	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R086	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R087	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R088	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R093	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R094	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R095	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R096	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R098	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R251	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R252	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R253	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R254	1-216-357-00	METAL OXIDE	4.7	5%	1W	F
R255	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R256	1-216-115-00	METAL GLAZE	560K	5%	1/10W	
R257	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R258	1-215-869-11	METAL OXIDE	1K	5%	1W	F
R259	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R261	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R262	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R263	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R264	1-216-357-00	METAL OXIDE	4.7	5%	1W	F
R265	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R266	1-216-115-00	METAL GLAZE	560K	5%	1/10W	
R267	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R268	1-215-869-11	METAL OXIDE	1K	5%	1W	F
R269	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R270	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R271	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R272	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R273	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R274	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R500	1-216-115-00	METAL GLAZE	560K	5%	1/10W	
R501	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R502	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R503	1-216-035-00	METAL GLAZE	270	5%	1/10W	
R504	1-249-420-11	CARBON	1.8K	5%	1/4W	
R505	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R506	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R509	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R510	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R514	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R515	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R517	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R518	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R519	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R520	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R521	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R522	1-215-469-00	METAL	100K	1%	1/4W	
R523	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R524	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R525	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R526	1-249-409-11	CARBON	220	5%	1/4W	F
R527	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R528	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R529	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R530	1-249-448-11	CARBON	1.2	5%	1/4W	F
R531	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R532	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R533	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R534	1-216-119-00	METAL GLAZE	820K	5%	1/10W	
R535	1-249-749-00	CARBON	2.2M	5%	1/4W	
R536	1-216-129-00	METAL GLAZE	2.2M	5%	1/10W	
R537	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R538	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R539	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R540	1-216-013-00	METAL GLAZE	33	5%	1/10W	
R541	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R542	1-216-308-00	METAL GLAZE	4.7	5%	1/10W	
R543	1-249-451-11	CARBON	2.2	5%	1/4W	
R544	1-247-745-11	CARBON	330	5%	1/2W	
R545	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R546	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R547	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R548	1-216-349-00	METAL OXIDE	1	5%	1W	F
R549	1-216-454-11	METAL OXIDE	390	5%	2W	F
R550	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R551	1-216-129-00	METAL GLAZE	2.2M	5%	1/10W	
R553	1-215-869-11	METAL OXIDE	1K	5%	1W	
R554	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R555	1-216-129-00	METAL GLAZE	2.2M	5%	1/10W	

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The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION				REMARK
R556	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R557	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R558	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R559	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W	
R560	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R591	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R592	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R593	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R594	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R597	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R598	1-215-900-11	METAL OXIDE	22K	5%	2W	F
R600	1-249-381-11	CARBON	1	5%	1/4W	
R601	1-216-353-00	METAL OXIDE	2.2	5%	1W	F
R603	1-216-469-11	METAL OXIDE	12	5%	3W	F
R604	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R605	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R606	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R607	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R608	1-216-488-11	METAL OXIDE	18K	5%	3W	F
R609	1-216-007-00	METAL GLAZE	18	5%	1/10W	
R610	1-244-941-00	CARBON	680K	5%	1/2W	
R611	1-216-015-00	METAL GLAZE	39	5%	1/10W	
R612	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R613	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R614	1-205-758-11	WIREWOUND	100	10%	10W	F
R616	1-216-099-00	METAL GLAZE	120K	5%	1/10W	
R617	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R618	1-216-431-11	METAL OXIDE	560	5%	1W	F
R619	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R620	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R621	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R622	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R623	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R624	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R625	1-215-865-11	METAL OXIDE	220	5%	1W	F
R626	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R628	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R629	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R631	1-216-465-11	METAL OXIDE	27K	5%	2W	
R633	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R634	1-216-430-11	METAL OXIDE	390	5%	1W	F
R635	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R636	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R643	1-217-189-21	WIREWOUND	0.12	5%	2W	F
R651	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R653	1-205-758-11	WIREWOUND	100	10%	10W	F
R802	1-249-443-11	CARBON	0.47	5%	1/4W	F
R805	1-249-448-11	CARBON	1.2	5%	1/4W	F
R806	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R807	1-217-778-11	FUSIBLE	1K	5%	1W	F
R809	1-202-821-11	SOLID	1.8K	10%	1/2W	
R810	1-202-818-00	SOLID	1K	10%	1/2W	
R811	1-215-882-00	METAL OXIDE	22	5%	2W	F
R812	1-249-494-11	CARBON	68K	5%	1/2W	
R815	1-215-884-11	METAL OXIDE	47	5%	2W	F
R816	1-215-868-00	METAL OXIDE	680	5%	1W	F
R817	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R820	1-249-403-11	CARBON	68	5%	1/4W	
R821	1-247-725-11	CARBON	10K	5%	1/4W	F
R822 ⚠	1-217-778-61	FUSIBLE	1K	5%	1W	F
R825	1-216-345-11	METAL OXIDE	0.47	5%	1W	F
R826	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R827	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R828	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R829	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R831	1-249-451-11	CARBON	2.2	5%	1/4W	
R1601 ⚠	1-246-513-75	CARBON	47K	5%	1/4W	
R1602 ⚠	1-244-945-91	CARBON	1M	5%	1/2W	
R1603 ⚠	1-217-328-11	WIREWOUND	2.7	10%	7W	F
R1604 ⚠	1-246-513-75	CARBON	47K	5%	1/4W	
R1605 ⚠	1-218-265-91	METAL GLAZE	8.2M	5%	1W	
R5501	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R5503	1-216-308-00	METAL GLAZE	4.7	5%	1/10W	
R5504	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R5505	1-216-001-00	METAL GLAZE	10	5%	1/10W	

<VARIABLE RESISTOR>

RV501	1-238-013-11	RES, ADJ, CARBON 2.2K
RV502	1-238-016-11	RES, ADJ, CARBON 10K
RV601	1-238-011-11	RES, ADJ, CARBON 470

<SPARK GAP>

SG801	1-519-422-11	GAP, SPARK

<THERMISTOR>

THP601 ⚠	1-808-059-32	THERMISTOR, POSITIVE

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*A-1645-013-A V BOARD, COMPLETE
****

<CAPACITOR>

C1	1-126-101-11	ELECT	100MF	20%	16V
C2	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C3	1-124-120-11	ELECT	220MF	20%	16V
C4	1-163-077-00	CERAMIC CHIP	0.1MF		50V
C5	1-124-120-11	ELECT	220MF	20%	16V
C6	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C10	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C11	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C12	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C13	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C14	1-124-927-11	ELECT	4.7MF	20%	50V
C15	1-124-927-11	ELECT	4.7MF	20%	50V
C16	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C17	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C18	1-163-141-00	CERAMIC CHIP	0.001MF	5%	50V
C26	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C27	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C28	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C29	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C32	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C33	1-163-038-00	CERAMIC CHIP	0.1MF		25V

<CONNECTOR>

CNV1	*1-565-393-11	CONNECTOR, BOARD TO BOARD
CNV2	*1-565-393-11	CONNECTOR, BOARD TO BOARD

<DIODE>

D1	8-719-105-91	DIODE RD5.6M-B2
D3	8-719-914-44	DIODE DAP202K

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION	REMARK
D4	8-719-400-18	DIODE MA152WK	
D5	8-719-914-44	DIODE DAP202K	
D6	8-719-400-18	DIODE MA152WK	
D7	8-719-105-52	DIODE RD3.6M-B2	
D9	8-719-106-17	DIODE RD6.8M-B2	
		<IC>	
IC1	8-759-039-18	IC SDA20162-B002	
IC2	8-759-045-54	IC SAA5246P/E/M4A	
IC3	8-759-510-49	IC FCB61C65L-70P	
		<COIL>	
L1	1-408-403-00	INDUCTOR 3.3UH	
L2	1-408-407-00	INDUCTOR 6.8UH	
L3	1-408-407-00	INDUCTOR 6.8UH	
L4	1-408-407-00	INDUCTOR 6.8UH	
		<IC LINK>	
PS1	⚠1-532-679-91	LINK, IC 0.6A	
		<TRANSISTOR>	
Q1	8-729-900-53	TRANSISTOR DTC114EK	
Q2	8-729-920-92	TRANSISTOR 2SD2096-EF	
Q3	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q4	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q5	8-729-807-87	TRANSISTOR 2SB1295-UL6	
Q6	8-729-807-87	TRANSISTOR 2SB1295-UL6	
Q7	8-729-807-87	TRANSISTOR 2SB1295-UL6	
Q8	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
		<RESISTOR>	
JR01	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR02	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR03	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR08	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR09	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR11	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR14	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR17	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR18	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR19	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR20	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR21	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR23	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR24	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR25	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR26	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR201	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR204	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR207	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR208	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR211	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR213	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR219	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR220	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR223	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R1	1-218-326-11	METAL GLAZE 470 5% 1/2W	
R3	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R4	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R5	1-216-047-00	METAL GLAZE 820 5% 1/10W	
R6	1-216-001-00	METAL GLAZE 10 5% 1/10W	
R7	1-216-083-00	METAL GLAZE 27K 5% 1/10W	
R8	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W	
R9	1-216-308-00	METAL GLAZE 4.7 5% 1/10W	
R02	1-216-214-00	METAL GLAZE 4.7K 5% 1/8W	
R10	1-218-325-11	METAL GLAZE 120 5% 1/4W	
R11	1-218-325-11	METAL GLAZE 120 5% 1/4W	
R12	1-218-325-11	METAL GLAZE 120 5% 1/4W	
R13	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R14	1-216-001-00	METAL GLAZE 10 5% 1/10W	
R15	1-216-013-00	METAL GLAZE 33 5% 1/10W	
R16	1-216-013-00	METAL GLAZE 33 5% 1/10W	
R17	1-216-013-00	METAL GLAZE 33 5% 1/10W	
R18	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R19	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R20	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R21	1-216-041-00	METAL GLAZE 470 5% 1/10W	
R22	1-216-168-00	METAL GLAZE 56 5% 1/8W	
R23	1-216-214-00	METAL GLAZE 4.7K 5% 1/8W	
R24	1-216-055-00	METAL GLAZE 1.8K 5% 1/10W	
R25	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R26	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R27	1-216-214-00	METAL GLAZE 4.7K 5% 1/8W	
R28	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	
R34	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R35	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R40	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R41	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R42	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R44	1-216-295-00	METAL GLAZE 0 5% 1/10W	
R46	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R47	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R49	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R50	1-216-296-00	METAL GLAZE 0 5% 1/8W	
		<VARIABLE RESISTOR>	
RV1	1-238-012-11	RES, ADJ, CARBON 1K	
		<CRYSTAL>	
X1	1-579-266-31	CRYSTAL VIBRATOR	
X2	1-577-364-11	VIBRATOR, CERAMIC	

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*1-638-391-11 H1 BOARD
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		<CAPACITOR>			
C1651	1-102-106-00	CERAMIC	100PF	10%	50V
C1652	1-102-106-00	CERAMIC	100PF	10%	50V
C1653	1-102-074-00	CERAMIC	0.001MF	10%	50V
C1655	1-102-074-00	CERAMIC	0.001MF	10%	50V
		<CONNECTOR>			
H1-1	*1-568-881-51	PIN, CONNECTOR 6P			
H1-02	1-568-678-11	TERMINAL BLOCK, S 3P			
H1-4	*1-568-879-51	PIN, CONNECTOR 4P			
H1-05	1-562-837-11	JACK			
H1-23	*1-568-879-51	PIN, CONNECTOR 4P			
H1-43	*1-564-512-11	PLUG, CONNECTOR 9P			

H1 H2 J1

REF.NO.	PART NO.	DESCRIPTION				REMARK
		<RESISTOR>				
R1651	1-249-413-11	CARBON	470	5%	1/4W	
R1652	1-249-413-11	CARBON	470	5%	1/4W	
		<SWITCH>				
S1651	1-571-532-21	SWITCH, TACTIL				
S1652	1-571-532-21	SWITCH, TACTIL				
S1653	1-571-532-21	SWITCH, TACTIL				
		**********				
	*1-638-392-11	H2 BOARD				
		********				
	*4-374-987-01	GUIDE, LIGHT				
	*4-381-686-01	BRACKET (B), LIGHT GUIDE				
		<DIODE>				
D1651	8-719-948-31	DIODE LD-201VR				
	*4-201-076-01	HOLDER, LED; D1651				
D1652	8-719-948-31	DIODE LD-201VR				
	*4-201-076-01	HOLDER, LED; D1652				
D1654	8-719-948-31	DIODE LD-201VR				
	*4-201-076-01	HOLDER, LED; D1654				
		<CONNECTOR>				
H2-2	*1-568-882-51	PIN, CONNECTOR 7P				
		<IC>				
IC1651	8-741-101-75	IC SBX1610-11				
		<RESISTOR>				
R1662	1-249-413-11	CARBON	470	5%	1/4W	
		**********				
	*A-1651-031-A	J1 BOARD, COMPLETE				
		**********				
		<CAPACITOR>				
C203	1-124-925-11	ELECT	2.2MF	20%	50V	
C205	1-124-927-11	ELECT	4.7MF	20%	50V	
C206	1-124-925-11	ELECT	2.2MF	20%	50V	
C207	1-124-927-11	ELECT	4.7MF	20%	50V	
C213	1-126-233-11	ELECT	22MF	20%	50V	
C214	1-137-045-11	FILM	0.0068MF	10%	400V	
C217	1-137-045-11	FILM	0.0068MF	10%	400V	
C218	1-137-102-11	FILM	0.022MF	10%	250V	
C219	1-137-102-11	FILM	0.022MF	10%	250V	
C220	1-108-686-11	MYLAR	0.0033MF	10%	100V	
C221	1-108-686-11	MYLAR	0.0033MF	10%	100V	
C222	1-137-095-11	FILM	0.056MF	10%	100V	
C223	1-137-095-11	FILM	0.056MF	10%	100V	
C224	1-137-047-11	FILM	0.01MF	10%	400V	
C225	1-136-173-00	FILM	0.47MF	5%	50V	
C226	1-136-173-00	FILM	0.47MF	5%	50V	
C227	1-137-102-11	FILM	0.022MF	10%	250V	
C228	1-137-104-11	FILM	0.033MF	10%	250V	
C229	1-137-049-11	FILM	0.015MF	10%	400V	
C230	1-137-049-11	FILM	0.015MF	10%	400V	
C231	1-124-902-00	ELECT	0.47MF	20%	50V	
C232	1-124-907-11	ELECT	10MF	20%	50V	
C233	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	
C234	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	
C235	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	
C236	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	
C237	1-124-902-00	ELECT	0.47MF	20%	50V	
C238	1-163-125-00	CERAMIC CHIP	220PF	5%	50V	
C239	1-126-103-11	ELECT	470MF	20%	16V	
C240	1-163-018-00	CERAMIC CHIP	0.0056MF	10%	50V	
C241	1-163-018-00	CERAMIC CHIP	0.0056MF	10%	50V	
C242	1-163-033-00	CERAMIC CHIP	0.022MF		50V	
C243	1-163-033-00	CERAMIC CHIP	0.022MF		50V	
C244	1-163-033-00	CERAMIC CHIP	0.022MF		50V	
C245	1-163-033-00	CERAMIC CHIP	0.022MF		50V	
C1401	1-124-907-11	ELECT	10MF	20%	50V	
C1402	1-126-103-11	ELECT	470MF	20%	16V	
C1403	1-163-003-11	CERAMIC CHIP	330PF	10%	50V	
C1404	1-137-098-11	FILM	0.1MF	10%	100V	
C1405	1-163-029-11	CERAMIC CHIP	0.0047MF		50V	
C1406	1-137-098-11	FILM	0.1MF	10%	100V	
C1407	1-124-910-11	ELECT	47MF	20%	50V	
C1408	1-124-122-11	ELECT	100MF	20%	50V	
C1409	1-126-233-11	ELECT	22MF	20%	50V	
C1410	1-124-907-11	ELECT	10MF	20%	50V	
C1411	1-124-907-11	ELECT	10MF	20%	50V	
C1412	1-124-910-11	ELECT	47MF	20%	50V	
C1413	1-124-910-11	ELECT	47MF	20%	50V	
C1414	1-124-907-11	ELECT	10MF	20%	50V	
C1415	1-137-098-11	FILM	0.1MF	10%	100V	
C1416	1-137-098-11	FILM	0.1MF	10%	100V	
C1417	1-124-120-11	ELECT	220MF	20%	16V	
C1418	1-163-003-11	CERAMIC CHIP	330PF	10%	50V	
C1419	1-163-003-11	CERAMIC CHIP	330PF	10%	50V	
C1425	1-124-902-00	ELECT	0.47MF	20%	50V	
C1426	1-124-902-00	ELECT	0.47MF	20%	50V	
C1427	1-163-029-11	CERAMIC CHIP	0.0047MF		50V	
C1428	1-163-029-11	CERAMIC CHIP	0.0047MF		50V	
C1429	1-163-029-11	CERAMIC CHIP	0.0047MF		50V	
C1430	1-163-003-11	CERAMIC CHIP	330PF	10%	50V	
C1431	1-126-529-11	ELECT	0.47MF	20%	50V	
C1432	1-124-902-00	ELECT	0.47MF	20%	50V	
C1433	1-124-122-11	ELECT	100MF	20%	50V	
C1436	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V	
C1437	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V	
C1438	1-137-047-11	FILM	0.01MF	10%	400V	
C1439	1-137-047-11	FILM	0.01MF	10%	400V	
C1440	1-124-907-11	ELECT	10MF	20%	50V	
C1441	1-124-907-11	ELECT	10MF	20%	50V	
C1442	1-137-098-11	FILM	0.1MF	10%	100V	
C1443	1-137-098-11	FILM	0.1MF	10%	100V	
C1444	1-124-910-11	ELECT	47MF	20%	50V	
C1445	1-102-824-00	CERAMIC	470PF	5%	50V	
C1446	1-102-824-00	CERAMIC	470PF	5%	50V	
C1501	1-124-927-11	ELECT	4.7MF	20%	50V	
C1502	1-124-903-11	ELECT	1MF	20%	50V	
C1503	1-108-680-11	MYLAR	0.001MF	10%	100V	
C1504	1-124-910-11	ELECT	47MF	20%	50V	
C1505	1-137-094-11	FILM	0.047MF	10%	100V	
C1507	1-108-686-11	MYLAR	0.0033MF	10%	100V	

REF.NO.	PART NO.	DESCRIPTION				REMARK
C1508	1-124-903-11	ELECT	1MF	20%	50V	
C1509	1-124-903-11	ELECT	1MF	20%	50V	
C1511	1-124-927-11	ELECT	4.7MF	20%	50V	
C1512	1-137-045-11	FILM	0.0068MF	10%	400V	
C1513	1-163-105-00	CERAMIC CHIP	33PF	5%	50V	
C1514	1-137-102-11	FILM	0.022MF	10%	250V	
C1515	1-102-117-00	CERAMIC	820PF	10%	50V	
		<DIODE>				
D201	8-719-110-14	DIODE RD9.1ES-B3				
D202	8-719-110-14	DIODE RD9.1ES-B3				
D205	8-719-110-03	DIODE RD7.5ES-B2				
D206	8-719-110-03	DIODE RD7.5ES-B2				
D1401	8-719-110-03	DIODE RD7.5ES-B2				
D1403	8-719-110-03	DIODE RD7.5ES-B2				
D1404	8-719-110-03	DIODE RD7.5ES-B2				
D1405	8-719-110-03	DIODE RD7.5ES-B2				
D1406	8-719-110-03	DIODE RD7.5ES-B2				
D1407	8-719-921-77	DIODE MTZN-10C				
D1408	8-719-110-14	DIODE RD9.1ES-B3				
D1409	8-719-110-14	DIODE RD9.1ES-B3				
D1410	8-719-110-14	DIODE RD9.1ES-B3				
D1415	8-719-110-03	DIODE RD7.5ES-B2				
D1418	8-719-110-03	DIODE RD7.5ES-B2				
D1419	8-719-110-03	DIODE RD7.5ES-B2				
D1420	8-719-110-03	DIODE RD7.5ES-B2				
D1421	8-719-110-03	DIODE RD7.5ES-B2				
D1422	8-719-110-03	DIODE RD7.5ES-B2				
D1423	8-719-110-03	DIODE RD7.5ES-B2				
D1424	8-719-110-03	DIODE RD7.5ES-B2				
D1425	8-719-110-03	DIODE RD7.5ES-B2				
D1426	8-719-110-03	DIODE RD7.5ES-B2				
D1501	8-719-300-33	DIODE RU-3AM				
D1502	8-719-911-19	DIODE 1SS119				
D1503	8-719-911-19	DIODE 1SS119				
D1504	8-719-911-19	DIODE 1SS119				
D1505	8-719-911-19	DIODE 1SS119				
D1506	8-719-982-33	DIODE MTZJ-36D				
D1507	8-719-911-19	DIODE 1SS119				
D1510	8-719-911-19	DIODE 1SS119				
		<IC>				
IC201	8-759-013-17	IC TDA6200				
IC1401	8-752-053-17	IC CXA1114P				
IC1402	8-759-946-32	IC TEA2014A				
IC1403	8-759-140-53	IC UPD4053BC				
IC1501	8-759-942-16	IC TEA2031A				
		<CONNECTOR>				
CN1401	1-565-838-11	JACK BLOCK, PIN 2P				
J45	*1-568-878-51	PIN, CONNECTOR 3P				
J1-41	*1-566-641-11	CONNECTOR, HINGE (TAB) 18P				
J1-43	*1-564-524-11	PLUG, CONNECTOR 9P				
J1-44	*1-564-527-11	PLUG, CONNECTOR 12P				
J1-51	*1-566-641-11	CONNECTOR, HINGE (TAB) 18P				
		<JACK>				
J1402	1-561-534-41	SOCKET 21P				
J1403	1-561-534-41	SOCKET 21P				

REF.NO.	PART NO.	DESCRIPTION				REMARK
		<TRANSISTOR>				
Q201	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
Q202	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
Q1401	8-729-216-22	TRANSISTOR 2SA1162-G				
Q1402	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
Q1403	8-729-120-28	TRANSISTOR 2SC1623-L5L6				
Q1404	8-729-216-22	TRANSISTOR 2SA1162-G				
		<RESISTOR>				
R201	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R202	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W	
R203	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R204	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R205	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R206	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R207	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R208	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R209	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R210	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R211	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R212	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R213	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R214	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R215	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R216	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R217	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R218	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R219	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R220	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R221	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R222	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R223	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R224	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R225	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R226	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R227	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R228	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R229	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R230	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R231	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R232	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R233	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R234	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R235	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R236	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R240	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R241	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R242	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R243	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R244	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R245	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R246	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R247	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R248	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R249	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R250	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R1400	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R1401	1-216-023-00	METAL GLAZE	82	5%	1/10W	
R1402	1-216-170-00	METAL GLAZE	68	5%	1/8W	
R1403	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R1404	1-216-178-00	METAL GLAZE	150	5%	1/8W	

J1 IFG

REF.NO.	PART NO.	DESCRIPTION				REMARK
R1405	1-249-434-11	CARBON	27K	5%	1/4W	
R1407	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R1408	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R1409	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R1410	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R1411	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R1412	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R1413	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R1414	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R1415	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R1416	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R1417	1-216-023-00	METAL GLAZE	82	5%	1/10W	
R1418	1-247-738-11	CARBON	82	5%	1/2W	F
R1419	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R1420	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R1421	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R1422	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R1423	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R1424	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R1425	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R1426	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R1427	1-216-001-00	METAL GLAZE	10	5%	1/10W	
R1428	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R1429	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R1430	1-216-170-00	METAL GLAZE	68	5%	1/8W	
R1431	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R1432	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R1433	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R1434	1-249-393-11	CARBON	10	5%	1/4W	F
R1437	1-249-434-11	CARBON	27K	5%	1/4W	
R1440	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R1441	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R1442	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R1443	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R1444	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R1445	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R1446	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R1447	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R1448	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R1449	1-216-023-00	METAL GLAZE	82	5%	1/10W	
R1452	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R1453	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R1454	1-216-180-00	METAL GLAZE	180	5%	1/8W	
R1455	1-216-180-00	METAL GLAZE	180	5%	1/8W	
R1457	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R1459	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R1460	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R1461	1-216-190-00	METAL GLAZE	470	5%	1/8W	
R1462	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R1463	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R1464	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R1465	1-216-023-00	METAL GLAZE	82	5%	1/10W	
R1466	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R1467	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R1468	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R1469	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R1470	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R1471	1-216-023-00	METAL GLAZE	82	5%	1/10W	
R1472	1-216-023-00	METAL GLAZE	82	5%	1/10W	
R1473	1-216-023-00	METAL GLAZE	82	5%	1/10W	
R1474	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R1476	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R1477	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R1478	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R1480	1-216-190-00	METAL GLAZE	470	5%	1/8W	
R1482	1-216-178-00	METAL GLAZE	150	5%	1/8W	
R1483	1-216-178-00	METAL GLAZE	150	5%	1/8W	
R1484	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R1485	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R1486	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R1487	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R1488	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R1489	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R1501	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R1502	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R1503	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R1504	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R1505	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R1506	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R1509	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R1510	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R1511	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R1512	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R1513	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R1514	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R1515	1-216-117-00	METAL GLAZE	680K	5%	1/10W	
R1516	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R1517	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R1519	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R1520	1-216-113-00	METAL GLAZE	470K	5%	1/10W	
R1521	1-216-214-00	METAL GLAZE	4.7K	5%	1/8W	
R1556	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	

<VARIABLE RESISTOR>

RV1501	1-238-023-11	RES, ADJ, CARBON	470K
RV1502	1-238-016-11	RES, ADJ, CARBON	10K
RV1503	1-238-017-11	RES, ADJ, CARBON	22K
RV1504	1-238-012-11	RES, ADJ, CARBON	1K
RV1505	1-238-023-11	RES, ADJ, CARBON	470K
RV1506	1-238-017-11	RES, ADJ, CARBON	22K
RV1507	1-238-009-11	RES, ADJ, CARBON	220
RV1508	1-238-016-11	RES, ADJ, CARBON	10K
RV1509	1-238-023-11	RES, ADJ, CARBON	470K

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*A-1654-004-A IFG BOARD, COMPLETE
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<CAPACITOR>

C1	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C2	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C3	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C4	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C5	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C6	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C7	1-124-903-11	ELECT	1MF	20%	50V
C8	1-124-907-11	ELECT	10MF	20%	50V
C9	1-130-471-00	MYLAR	0.001MF	5%	50V
C10	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C11	1-163-119-00	CERAMIC CHIP	120PF	5%	50V
C12	1-136-298-00	FILM	0.0033MF	2%	100V
C13	1-124-477-11	ELECT	47MF	20%	16V
C14	1-124-477-11	ELECT	47MF	20%	16V
C15	1-124-477-11	ELECT	47MF	20%	16V
C16	1-124-477-11	ELECT	47MF	20%	16V

IFG MAIN

REF.NO.	PART NO.	DESCRIPTION				REMARK
C17	1-124-907-11	ELECT	10MF	20%	50V	
C18	1-137-047-11	FILM	0.01MF	10%	400V	
C19	1-137-047-11	FILM	0.01MF	10%	400V	
C20	1-126-233-11	ELECT	22MF	20%	50V	
C21	1-126-233-11	ELECT	22MF	20%	50V	
C22	1-137-098-11	FILM	0.1MF	10%	100V	
C23	1-137-031-11	FILM	0.22MF	10%	100V	
C24	1-124-034-51	ELECT	33MF	20%	16V	
C25	1-137-102-11	FILM	0.022MF	10%	250V	
C26	1-137-094-11	FILM	0.047MF	10%	100V	
C27	1-124-903-11	ELECT	1MF	20%	50V	
C28	1-163-109-00	CERAMIC CHIP	47PF	5%	50V	
C29	1-124-903-11	ELECT	1MF	20%	50V	
C30	1-124-903-11	ELECT	1MF	20%	50V	
C31	1-137-047-11	FILM	0.01MF	10%	400V	
C32	1-130-479-00	MYLAR	0.0047MF	5%	50V	
C33	1-163-081-00	CERAMIC CHIP	0.22MF		25V	
C34	1-137-031-11	FILM	0.22MF	10%	100V	
C35	1-124-907-11	ELECT	10MF	20%	50V	
C36	1-163-119-00	CERAMIC CHIP	120PF	5%	50V	
C37	1-124-477-11	ELECT	47MF	20%	16V	
C38	1-124-477-11	ELECT	47MF	20%	16V	
C39	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	

<FILTER>

CDA1	1-404-751-11	DISCRIMINATOR, CERAMIC	
CDA2	1-404-750-11	DISCRIMINATOR, CERAMIC	
SFT1	1-527-840-00	FILTER, CERAMIC	
SFT2	1-527-839-00	FILTER, CERAMIC	

<DIODE>

D3	8-719-400-18	DIODE MA152WK	

<IC>

IC1	8-759-003-90	IC TBA129	
IC2	8-759-003-90	IC TBA129	
IC3	8-759-030-48	IC TDA6600-2	
IC4	8-759-513-48	IC TDA2595/V9	

<CONNECTOR>

IFG13	*1-565-488-11	CONNECTOR, BOARD TO BOARD 12P	

<COIL>

L1	1-408-410-00	INDUCTOR	12UH
L2	1-408-410-00	INDUCTOR	12UH
L3	1-410-064-11	INDUCTOR	2.7MMH
L4	1-408-421-00	INDUCTOR	100UH
L5	1-408-421-00	INDUCTOR	100UH

<TRANSISTOR>

Q2	8-729-901-00	TRANSISTOR DTC124EK	
Q3	8-729-216-22	TRANSISTOR 2SA1162-G	
Q4	8-729-901-00	TRANSISTOR DTC124EK	

<RESISTOR>

JR8	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR10	1-216-296-00	METAL GLAZE	0	5%	1/8W
R1	1-216-045-00	METAL GLAZE	680	5%	1/10W
R2	1-216-043-00	METAL GLAZE	560	5%	1/10W
R3	1-216-043-00	METAL GLAZE	560	5%	1/10W
R5	1-216-045-00	METAL GLAZE	680	5%	1/10W
R6	1-216-043-00	METAL GLAZE	560	5%	1/10W
R7	1-216-043-00	METAL GLAZE	560	5%	1/10W
R9	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R11	1-216-095-00	METAL GLAZE	82K	5%	1/10W
R12	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R13	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W
R15	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W
R16	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R17	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R18	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R19	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R20	1-216-075-00	METAL GLAZE	12K	5%	1/10W
R22	1-216-099-00	METAL GLAZE	120K	5%	1/10W
R24	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R25	1-216-077-00	METAL GLAZE	15K	5%	1/10W

<VARIABLE RESISTOR>

RV1	1-238-016-11	RES, ADJ, CARBON 10K
RV2	1-238-019-11	RES, ADJ, CARBON 47K

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*A-4542-098-A MAIN BOARD, COMPLETE
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<CAPACITOR>

C1	1-126-205-11	ELECT CHIP	47MF	20%	6.3V
C2	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C3	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C4	1-126-204-11	ELECT CHIP	47MF	20%	16V
C5	1-126-204-11	ELECT CHIP	47MF	20%	16V
C6	1-126-204-11	ELECT CHIP	47MF	20%	16V
C7	1-126-204-11	ELECT CHIP	47MF	20%	16V
C8	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C9	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C11	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C12	1-163-809-11	CERAMIC CHIP	0.047MF	5%	25V
C13	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C14	1-126-603-11	ELECT CHIP	4.7MF	20%	35V
C15	1-126-601-11	ELECT CHIP	2.2MF	20%	50V
C16	1-126-205-11	ELECT CHIP	47MF	20%	6.3V
C17	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C18	1-163-227-11	CERAMIC CHIP	10PF	5%	50V
C19	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C20	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C21	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C22	1-163-095-00	CERAMIC CHIP	12PF	5%	50V
C23	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C24	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C25	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C30	1-126-607-11	ELECT CHIP	47MF	20%	4V
C31	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C51	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C52	1-163-809-11	CERAMIC CHIP	0.047MF	5%	25V
C53	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C54	1-126-603-11	ELECT CHIP	4.7MF	20%	35V
C55	1-126-601-11	ELECT CHIP	2.2MF	20%	50V
C56	1-126-205-11	ELECT CHIP	47MF	20%	6.3V
C57	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V

MAIN SW CN

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION			REMARK
C58	1-163-227-11	CERAMIC CHIP 10PF	5%	50V	
C59	1-163-031-11	CERAMIC CHIP 0.01MF		50V	
C60	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V	
C61	1-163-107-00	CERAMIC CHIP 39PF	5%	50V	
C62	1-163-093-00	CERAMIC CHIP 10PF	5%	50V	
C63	1-163-109-00	CERAMIC CHIP 47PF	5%	50V	
C64	1-163-009-11	CERAMIC CHIP 0.001MF	10%	50V	
C65	1-163-251-11	CERAMIC CHIP 100PF	5%	50V	
		<CONNECTOR>			
CNP1	1-506-906-11	PIN, CONNECTOR 5P			
CNP3	*1-564-517-11	PLUG, CONNECTOR 2P			
CNP4	*1-564-517-11	PLUG, CONNECTOR 2P			
		<DIODE>			
D9	8-719-105-28	DIODE RD2.4M-B			
D10	8-719-106-08	DIODE RD6.2M-B2			
D11	8-719-939-02	DIODE SVC203CP			
D51	8-719-939-02	DIODE SVC203CP			
		<IC>			
IC1	8-759-998-71	IC BA3308F			
		<COIL>			
L11	1-406-333-11	COIL (OSC)			
L12	1-410-392-11	INDUCTOR CHIP	82UH		
L13	1-412-400-31	INDUCTOR	68UH		
L51	1-406-334-11	COIL (OSC)			
L52	1-410-391-11	INDUCTOR CHIP	68UH		
L53	1-412-400-31	INDUCTOR	68UH		
		<TRANSISTOR>			
Q12	8-729-200-87	TRANSISTOR 2SC2714-Y			
Q13	8-729-216-22	TRANSISTOR 2SA1162-G			
Q14	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q15	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q52	8-729-200-87	TRANSISTOR 2SC2714-Y			
Q53	8-729-216-22	TRANSISTOR 2SA1162-G			
Q54	8-729-230-49	TRANSISTOR 2SC2712-YG			
Q55	8-729-230-49	TRANSISTOR 2SC2712-YG			
		<RESISTOR>			
JW2	1-216-296-00	METAL GLAZE	0	5% 1/8W	
JW3	1-216-295-00	METAL GLAZE	0	5% 1/10W	
JW4	1-216-295-00	METAL GLAZE	0	5% 1/10W	
JW5	1-216-296-00	METAL GLAZE	0	5% 1/8W	
JW6	1-216-296-00	METAL GLAZE	0	5% 1/8W	
JW8	1-216-296-00	METAL GLAZE	0	5% 1/8W	
JW9	1-216-295-00	METAL GLAZE	0	5% 1/10W	
R1	1-216-133-00	METAL GLAZE	3.3M	5% 1/10W	
R5	1-216-043-00	METAL GLAZE	560	5% 1/10W	
R6	1-216-043-00	METAL GLAZE	560	5% 1/10W	
R8	1-216-051-00	METAL GLAZE	1.2K	5% 1/10W	
R9	1-216-053-00	METAL GLAZE	1.5K	5% 1/10W	
R11	1-216-053-00	METAL GLAZE	1.5K	5% 1/10W	
R12	1-216-053-00	METAL GLAZE	1.5K	5% 1/10W	
R13	1-216-025-00	METAL GLAZE	100	5% 1/10W	
R14	1-216-089-00	METAL GLAZE	47K	5% 1/10W	
R15	1-216-071-00	METAL GLAZE	8.2K	5% 1/10W	
R16	1-216-073-00	METAL GLAZE	10K	5% 1/10W	
R17	1-216-065-00	METAL GLAZE	4.7K	5% 1/10W	
R18	1-216-081-00	METAL GLAZE	22K	5% 1/10W	
R19	1-216-025-00	METAL GLAZE	100	5% 1/10W	
R20	1-216-111-00	METAL GLAZE	390K	5% 1/10W	
R21	1-216-025-00	METAL GLAZE	100	5% 1/10W	
R22	1-216-057-00	METAL GLAZE	2.2K	5% 1/10W	
R24	1-216-691-11	METAL CHIP	47K	0.50% 1/10W	
R25	1-216-661-11	METAL CHIP	2.7K	0.50% 1/10W	
R26	1-216-061-00	METAL GLAZE	3.3K	5% 1/10W	
R27	1-216-022-00	METAL GLAZE	75	5% 1/10W	
R28	1-216-022-00	METAL GLAZE	75	5% 1/10W	
R29	1-216-017-00	METAL GLAZE	47	5% 1/10W	
R51	1-216-053-00	METAL GLAZE	1.5K	5% 1/10W	
R52	1-216-053-00	METAL GLAZE	1.5K	5% 1/10W	
R53	1-216-025-00	METAL GLAZE	100	5% 1/10W	
R54	1-216-089-00	METAL GLAZE	47K	5% 1/10W	
R55	1-216-073-00	METAL GLAZE	10K	5% 1/10W	
R56	1-216-073-00	METAL GLAZE	10K	5% 1/10W	
R57	1-216-065-00	METAL GLAZE	4.7K	5% 1/10W	
R58	1-216-081-00	METAL GLAZE	22K	5% 1/10W	
R59	1-216-025-00	METAL GLAZE	100	5% 1/10W	
R60	1-216-111-00	METAL GLAZE	390K	5% 1/10W	
R61	1-216-025-00	METAL GLAZE	100	5% 1/10W	
R62	1-216-057-00	METAL GLAZE	2.2K	5% 1/10W	
R64	1-216-691-11	METAL CHIP	47K	0.50% 1/10W	
R65	1-216-661-11	METAL CHIP	2.7K	0.50% 1/10W	
R66	1-216-061-00	METAL GLAZE	3.3K	5% 1/10W	
R67	1-216-022-00	METAL GLAZE	75	5% 1/10W	
R68	1-216-022-00	METAL GLAZE	75	5% 1/10W	
R69	1-216-017-00	METAL GLAZE	47	5% 1/10W	
R71	1-216-089-00	METAL GLAZE	47K	5% 1/10W	
R81	1-216-089-00	METAL GLAZE	47K	5% 1/10W	
		<VARIABLE RESISTOR>			
RV11	1-238-989-11	RES, ADJ, METAL GLAZE 2.2K			
RV51	1-238-989-11	RES, ADJ, METAL GLAZE 2.2K			
**********					
	*1-643-141-11	SW BOARD			
		********			
		<CONNECTOR>			
CNP2	*1-564-520-11	PLUG, CONNECTOR 5P			
		<IC LINK>			
ICP1	⚠1-532-984-11	LINK, IC 2A			
		<SWITCH>			
S1	1-570-913-11	SWITCH, PUSH			
S2	1-554-061-00	SWITCH, SLIDE			
**********					
	*1-643-965-11	CN BOARD			
		********			
		<CONNECTOR>			

CN LED

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

REF.NO.	PART NO.	DESCRIPTION		REMARK
CNP5	1-506-906-11	PIN, CONNECTOR 5P		
**********				
	*1-643-140-11	LED BOARD		
		*********		
		<CAPACITOR>		
C101	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C103	1-163-031-11	CERAMIC CHIP 0.01MF		50V
C104	1-126-395-11	ELECT CHIP 22MF	20%	16V
C105	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C106	1-126-395-11	ELECT CHIP 22MF	20%	16V
C107	1-163-038-00	CERAMIC CHIP 0.1MF		25V
		<CONNECTOR>		
CNP101	*1-564-517-11	PLUG, CONNECTOR 2P		
		<DIODE>		
D101	8-719-992-10	DIODE IR5BF-A		
D102	8-719-992-10	DIODE IR5BF-A		
D103	8-719-992-10	DIODE IR5BF-A		
D104	8-719-992-10	DIODE IR5BF-A		
D105	8-719-992-10	DIODE IR5BF-A		
D106	8-719-992-10	DIODE IR5BF-A		
D107	8-719-992-10	DIODE IR5BF-A		
D108	8-719-992-10	DIODE IR5BF-A		
		<COIL>		
L101	1-412-400-31	INDUCTOR 68UH		
		<TRANSISTOR>		
Q101	8-729-216-22	TRANSISTOR 2SA1162-G		
Q102	8-729-140-75	TRANSISTOR 2SD999-CLCK		
Q103	8-729-216-22	TRANSISTOR 2SA1162-G		
Q104	8-729-140-75	TRANSISTOR 2SD999-CLCK		
Q107	8-729-230-49	TRANSISTOR 2SC2712-YG		
		<RESISTOR>		
JW101	1-216-295-00	METAL GLAZE 0	5%	1/10W
R101	1-216-022-00	METAL GLAZE 75	5%	1/10W
R102	1-216-071-00	METAL GLAZE 8.2K	5%	1/10W
R104	1-216-025-00	METAL GLAZE 100	5%	1/10W
R105	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W
R106	1-216-003-11	METAL GLAZE 12	5%	1/10W
R107	1-216-025-00	METAL GLAZE 100	5%	1/10W
R108	1-216-057-00	METAL GLAZE 2.2K	5%	1/10W
R109	1-216-003-11	METAL GLAZE 12	5%	1/10W
		<VARIABLE RESISTOR>		
RV101	1-238-989-11	RES, ADJ, METAL GLAZE 2.2K		
**********				
		MISCELLANEOUS		
		**********		
⚠	1-451-311-21	DEFLECTION YOKE (Y25FXA)		
	1-452-032-00	MAGNET, DISK; 10MM ϕ		
	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM ϕ		
⚠	1-460-091-11	COIL DEGAUSS		
	1-544-727-11	SPEAKER (7.5X13CM)		
⚠	1-590-501-11	CORD, POWER (WITH NOISE FILTER)		
	8-913-822-90	TRANSMITTER TMR-D1003 SET		
V901	⚠ 8-733-231-05	PICTURE TUBE (A59JWC61X)		
**********				
		ACCESSORIES AND PACKING MATERIALS		
		**********		
	3-755-297-11	MANUAL, INSTRUCTION		
	*4-034-981-01	CUSHION (UPPER) (ASSY)		
	*4-035-035-01	CUSHION (LOWER) (ASSY)		
	*4-035-040-01	INDIVIDUAL CARTON		
	*4-380-340-01	BAG, PROTECTION		
	8-953-467-91	HEADPHONE MDR-IF310/1 SET		
		REMOTE COMMANDER		
	1-465-796-11	CONTROL UNIT, REMOTE (RM-816)		
	4-031-670-01	COVER, POCKET (FOR RM-816)		

MEMO

ACCESSORY

MDR-IF310

SPECIFICATIONS

General

Modulation system	Frequency modulation
Carrier frequency	Right 2.8 MHz Left 2.3 MHz
Effective range	Up to approx. 7 m (23 ft.)
Frequency response	18 – 22,000 Hz
Distortion	Less than 1% at 1 kHz

Headphones MDR-IF310

Power source	DC 3 V, 2 × R6 (size AA) battery
Weight	Approx. 170 g (6.0 oz.) incl. batteries

Design and specifications subject to change without notice.

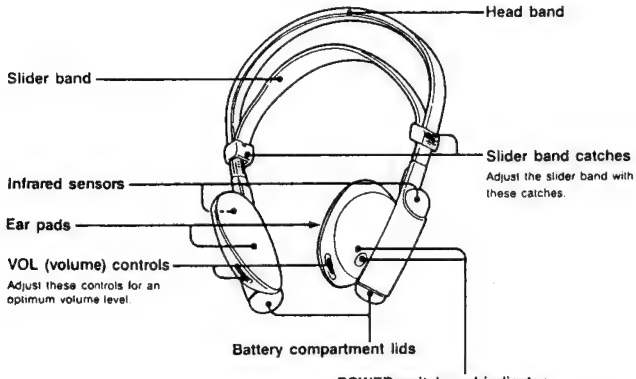
CORDLESS STEREO HEADPHONES

SECTION 1
GENERAL

This section is extracted from instruction manual.

Parts Identification

Headphones



POWER switch and indicator

Press the POWER switch. The indicator lights up. To turn off the power, press it again. When approximately 3 hours have elapsed without the unit being used, the POWER switch will be turned off automatically to avoid unnecessary battery wear.

Power Source of the Headphones

Use two R6 (size AA) batteries for the headphones. Be sure to use the same type of batteries for both right and left battery compartments.

When the batteries become weak

The POWER indicator dims, and a hissing noise increases. In such a case, replace both batteries.

The approximate battery life for continuous operation is as follows:

Sony alkaline battery AM3(N):	120 hours
Sony battery SUM-3(NS):	60 hours

Battery Installation

1 Open both battery compartments' lids.

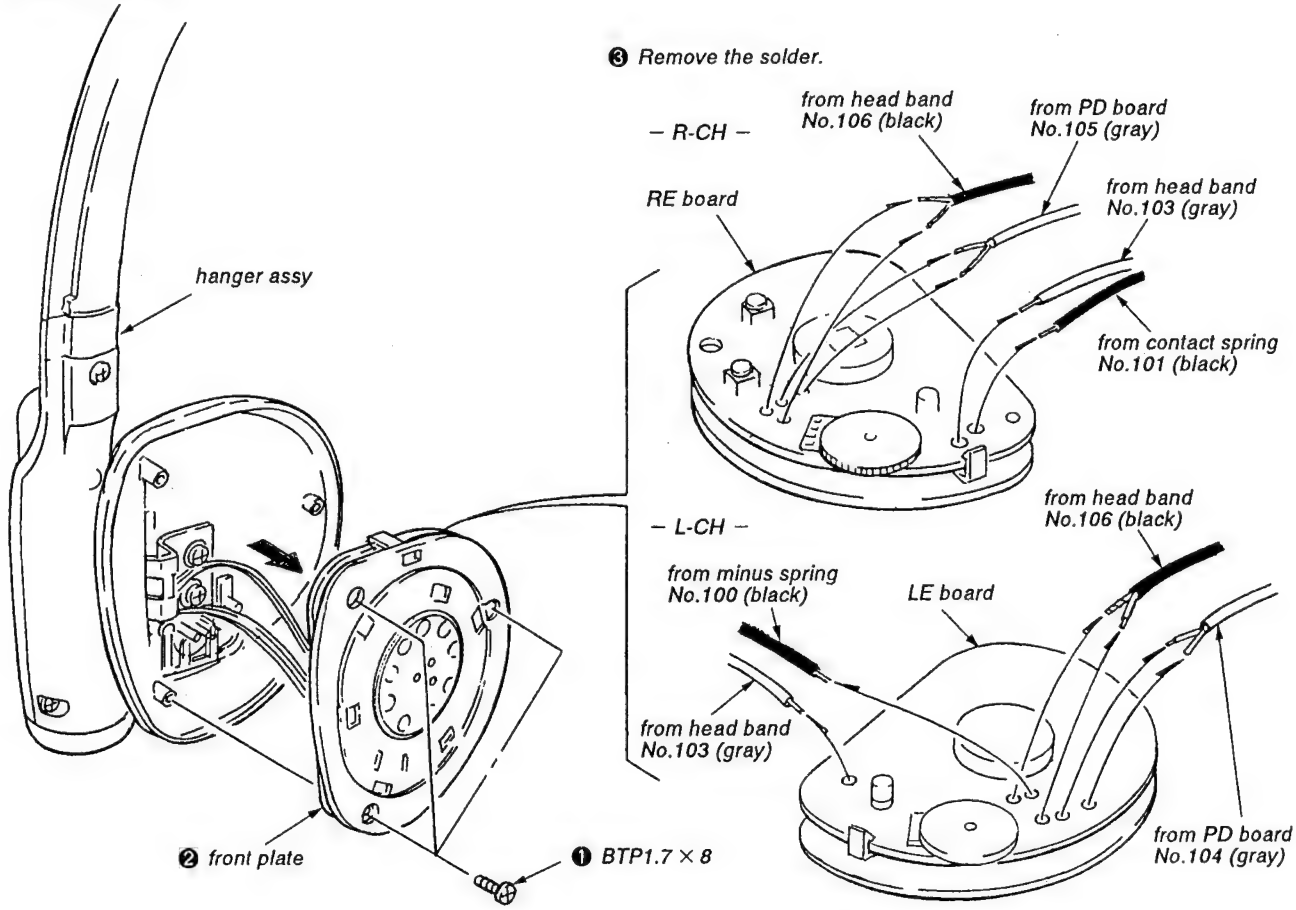
2 Insert the batteries with the correct polarity.

3 Close the battery compartments' lids.

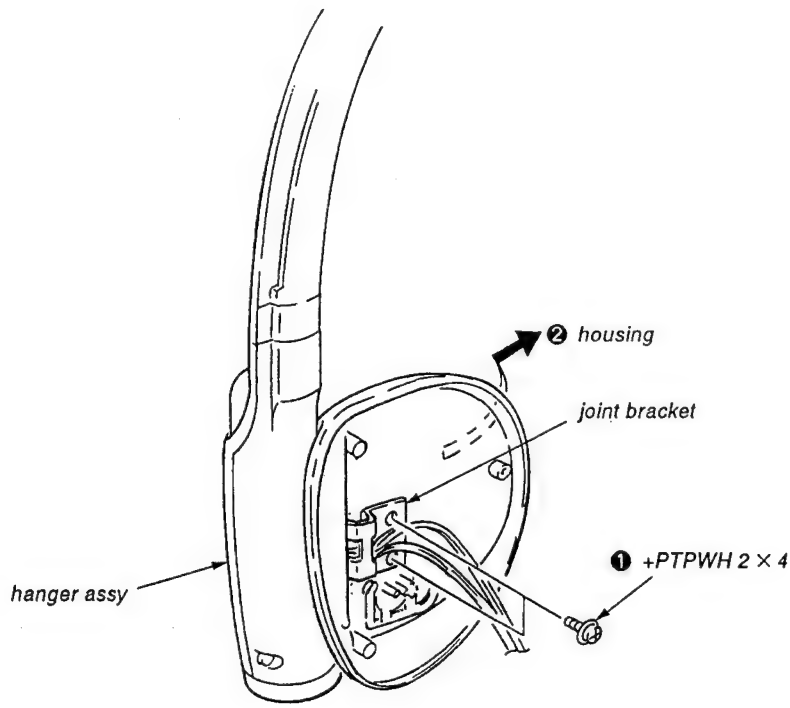
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

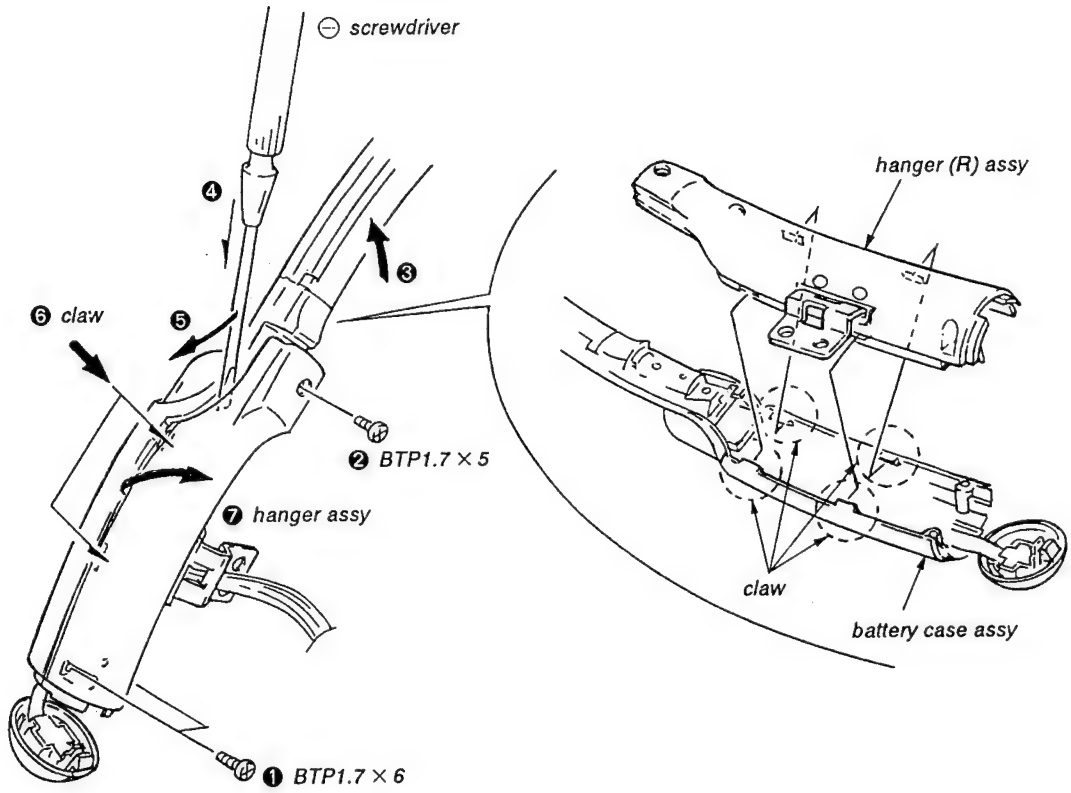
FRONT PLATE



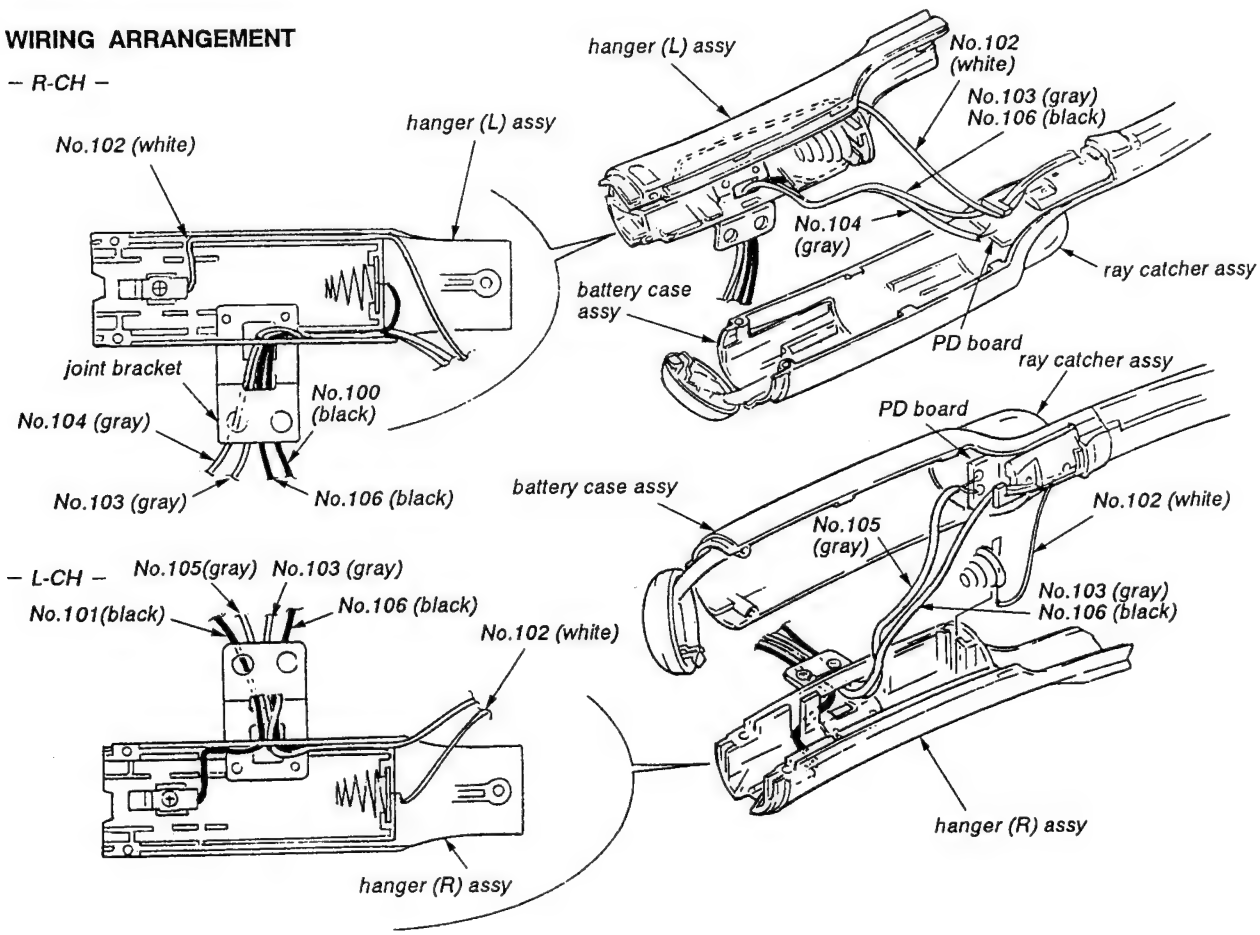
HOUSING



HANGER



WIRING ARRANGEMENT



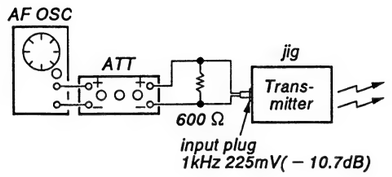
SECTION 3
ADJUSTMENTS

Note:
1. On adjusting, use the transmitter (TMR-IF5) as a jig.
2. L-ch adjustment should be completed before performing R-ch adjustment.

0 dB = 0.775 V

[Receiving Frequency Adjustment]

Preparation:



1. Feed a signal to jig (TMR-IF5) and connect a power supply.
2. Volume control: Optional position.
3. Short-circuit: Q3 (Q53) Base – Emitter (Ground)

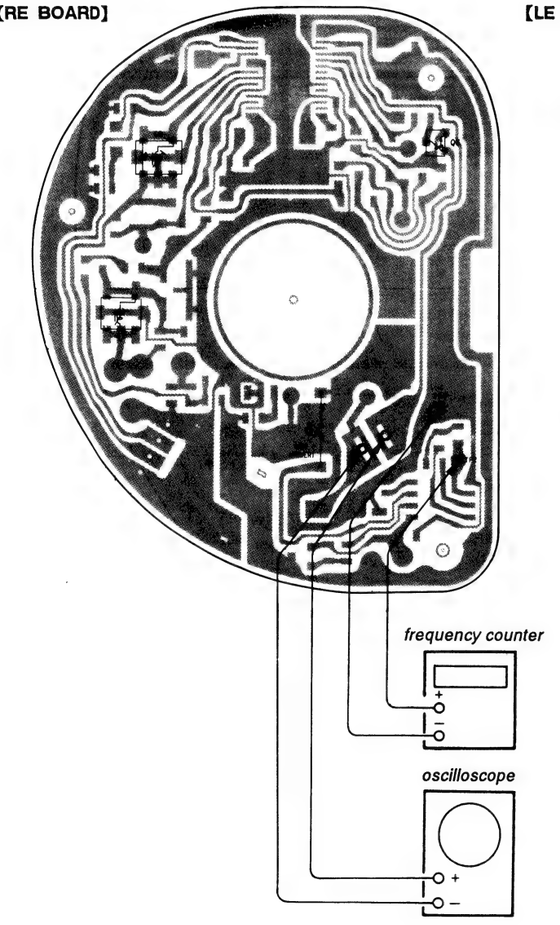
Procedure:
1. Connect a oscilloscope to SP1 or SP51.
2. Turn on the power switch on the headphones.
3. Adjust to make minute input level with changing the direction of the emitting position of jig so that the noise appears on the waveform.
4. Adjust with L5 (L-ch) or L55 (R-ch) to maximize the reading on the oscilloscope.
5. Adjust with L1 (L-ch) or L51 (R-ch) to maximize the reading on the oscilloscope.
6. Release the short-circuit position.
   Q3 (Q53) Base – Emitter (Ground)

[Timer Clock Frequency Check]

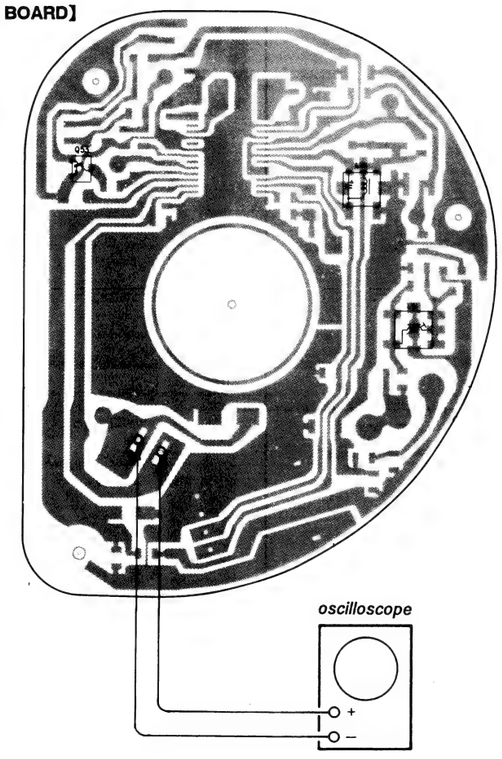
1. Connect a frequency counter to TP2 and TP (GND).
2. Check the reading on the frequency counter becomes to the checking value.
   Checking value: 300 Hz – 390 Hz.

[Connection and Adjustment Location]

[RE BOARD]



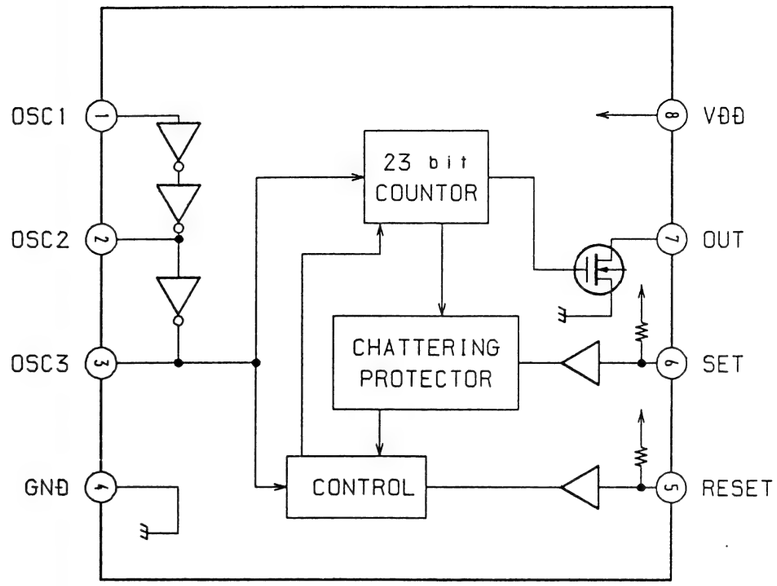
[LE BOARD]



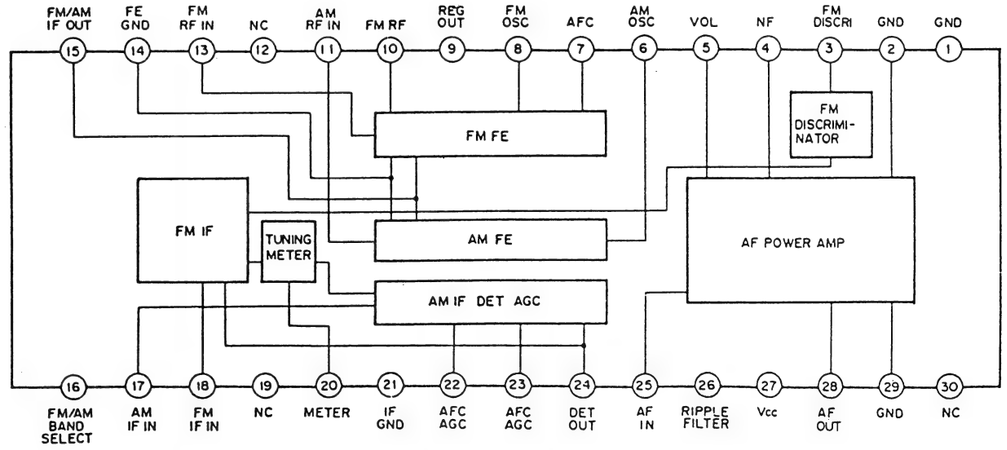
SECTION 4
DIAGRAMS

- **IC Block Diagrams**

IC2 BU2305F



IC21, 51 CXA1280N



KV-H2511D
MDR-IF310/RM-816

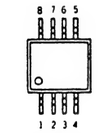
4-1. PRINTED WIRING BOARDS

- **Semiconductor Location**

Ref. No.	Location
D1	G-3
D2	E-2
D52	D-12
IC1	C-4
IC2	H-5
IC51	D-10
PH101	A-5, A-8
PH102	A-6, A-9
Q2	H-4
Q3	D-5
Q4	D-4
Q5	D-5
Q51	E-13
Q53	D-9
Q54	C-9
Q55	D-9

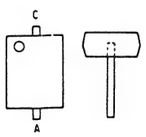
- **Semiconductor Lead Layout**

BU2305F

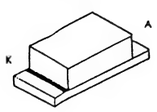


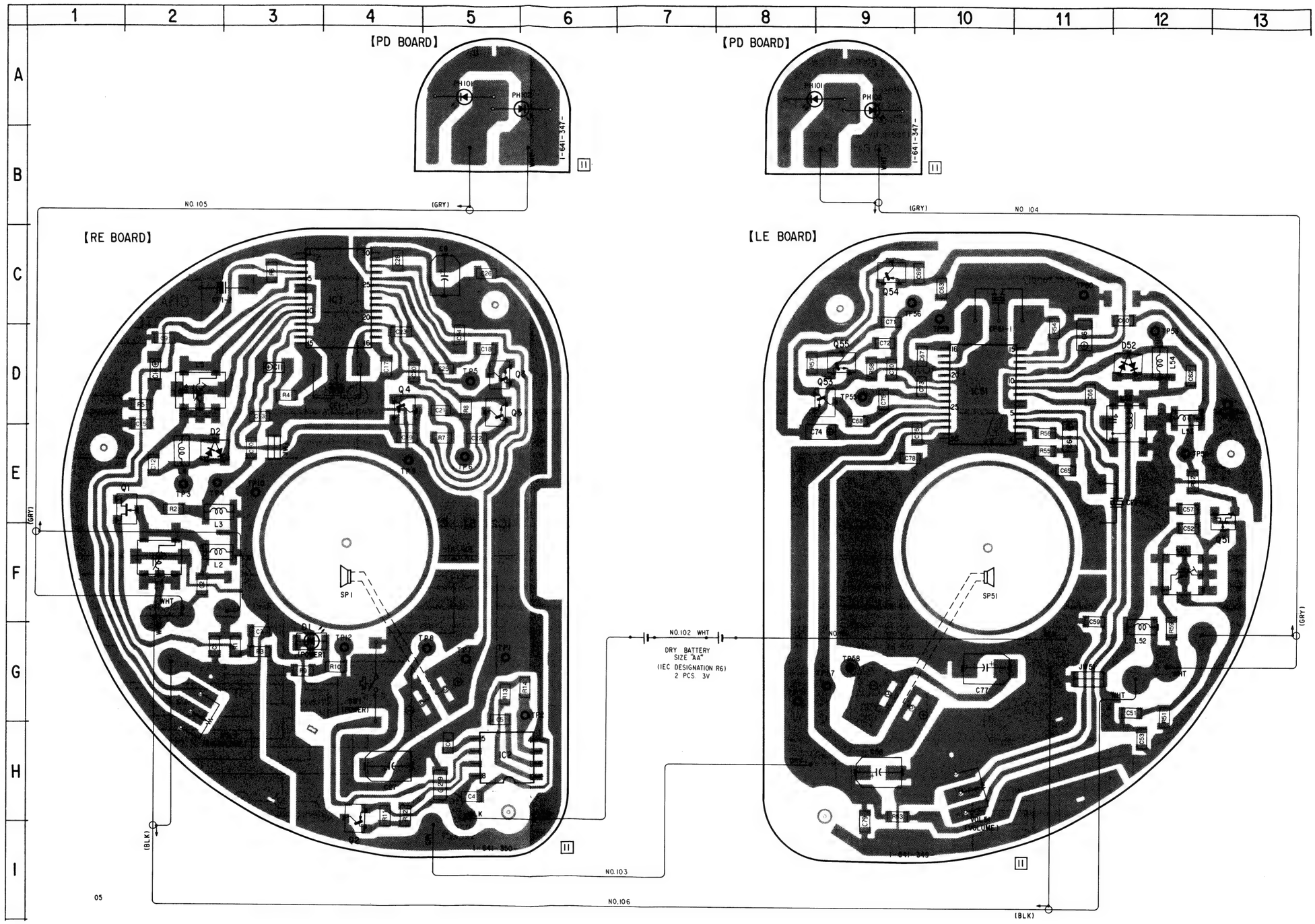
CXA1280N

PP601-1



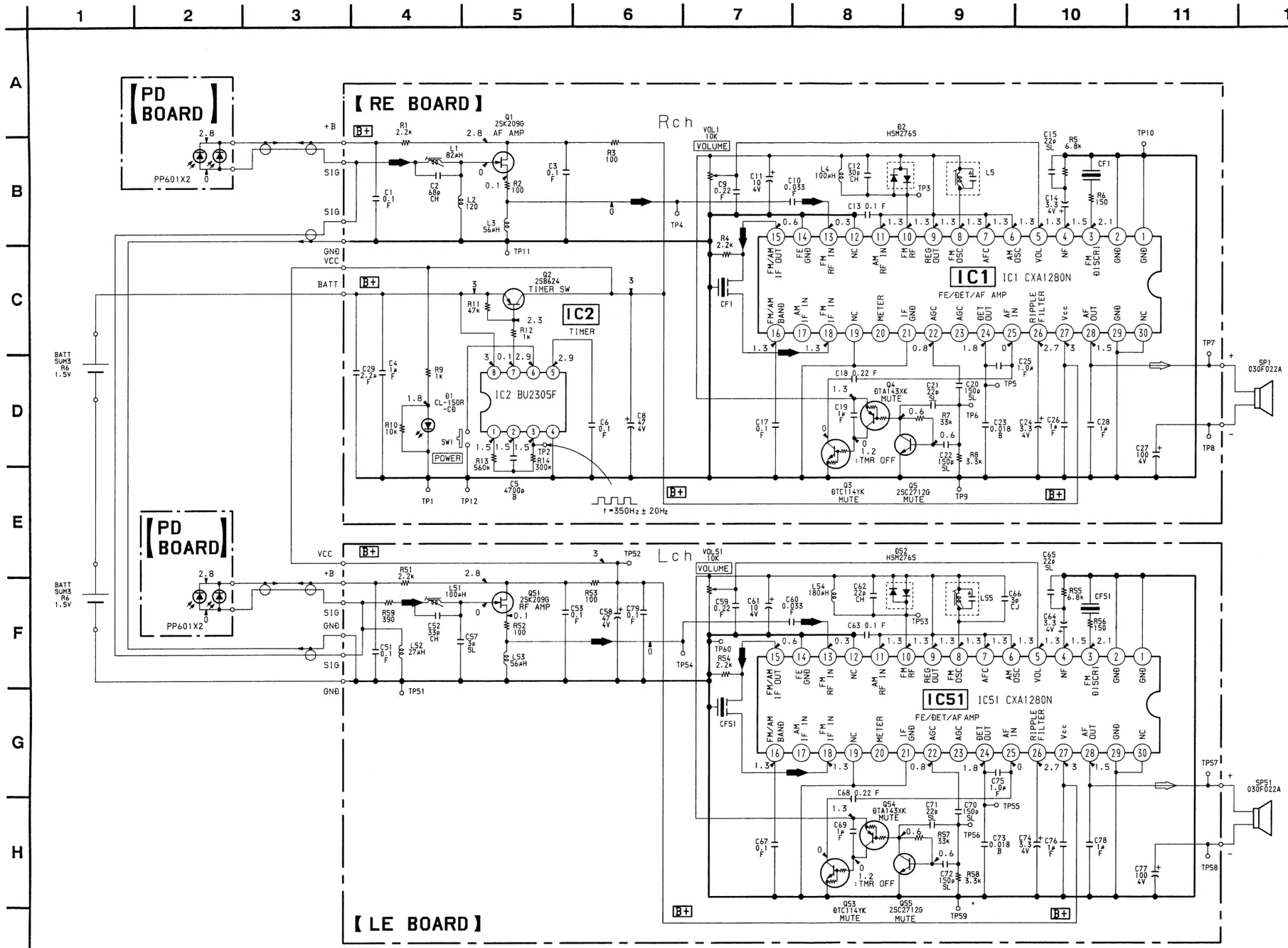
CL-150R-CD





Note:

- ○—— : parts extracted from the component side.
- ● : Through hole.
- ▒▒ : Pattern on the side which is seen.



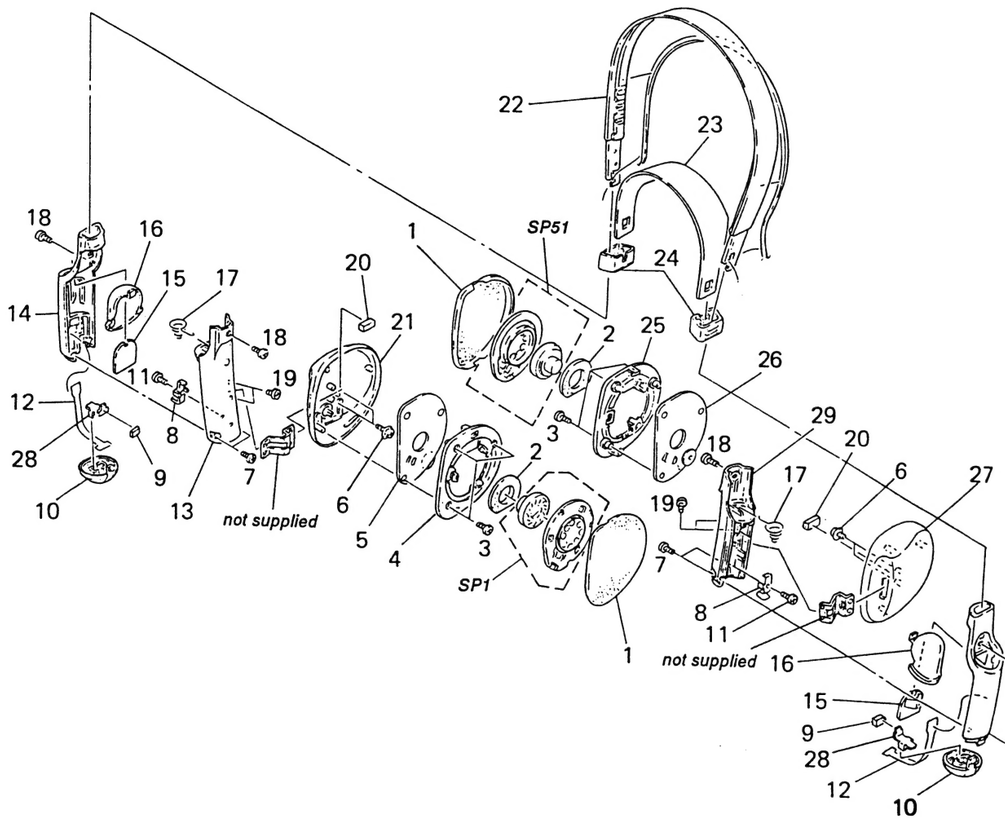
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- B+ : B + Line.
- ▭ : adjustment for repair.
- Power voltage is dc 3 V and fed with regulated dc power supply from battery terminal.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (10 MΩ/V). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  - ⇨ : Audio signal
  - ➡ : RF signal

SECTION 5
EXPLODED VIEW

NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.



Ref.No.	Part No.	Description	Remark
1	4-947-791-01	PAD, EAR	
* 2	4-948-895-01	DAMPER	
3	3-318-203-31	SCREW (B1.7X8), TAPPING	
* 4	4-947-813-01	PLATE (R), FRONT	
* 5	A-4542-062-A	RE BOARD, COMPLETE	
6	3-313-392-01	SCREW (2X4), + PTPWH	
7	3-318-203-11	SCREW (B1.7X6), TAPPING	
8	4-947-795-01	SPRING, CONTACT	
9	9-911-838-XX	CUSHION	
10	4-947-800-01	LID, BATTERY CASE	
11	7-627-552-07	SCREW (M1.7X2.5), TAPPING	
12	4-947-789-01	SHEET	
13	4-947-810-01	HANGER (R)	
14	4-947-808-01	CASE, BATTERY	
* 15	1-641-347-11	PC BOARD, PD	
16	4-947-790-01	COVER, RAY CATCHER	
17	4-947-794-01	SPRING, MINUS	
18	3-318-203-11	SCREW (B1.7X6), TAPPING	
19	7-627-852-28	SCREW +P 1.7X3	
20	4-947-796-01	CUSHION	
21	X-4941-959-1	HOUSING (R) ASSY	
* 22	4-947-809-01	BAND, HEAD	
* 23	4-947-798-01	BAND, SLIDER	
24	4-947-801-01	KNOB, SLIDER	
* 25	4-947-812-01	PLATE (L), FRONT	
* 26	A-4542-061-A	LE BOARD, COMPLETE	
27	4-947-804-01	HOUSING (L)	
28	4-947-793-01	TERMINAL, PLUS	
29	4-947-811-01	HANGER (L)	
SP1	1-505-117-11	DRIVER UNIT (03F022A)	
SP51	1-505-117-11	DRIVER UNIT (03F022A)	

LE PD

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF: μF
- COILS
  uH: μH

When including parts by reference number, please include the board name.

Ref.No.	Part No.	Description			Remark
*	A-4542-061-A	LE BOARD, COMPLETE			
		**********			
	1-578-717-71	FILTER, CRYSTAL			
		< CAPACITOR >			
C51	1-163-038-00	CERAMIC CHIP	0.1uF	25V	
C52	1-163-239-11	CERAMIC CHIP	33PF 5%	50V	
C53	1-163-038-00	CERAMIC CHIP	0.1uF	25V	
C57	1-163-086-00	CERAMIC CHIP	3PF	50V	
C58	1-126-607-11	ELECT CHIP	47uF 20%	4V	
C59	1-164-222-11	CERAMIC CHIP	0.22uF	25V	
C60	1-163-034-00	CERAMIC CHIP	0.033uF	50V	
C61	1-135-201-11	TANTALUM CHIP	10uF 20%	4V	
C62	1-163-235-11	CERAMIC CHIP	22PF 5%	50V	
C63	1-163-038-00	CERAMIC CHIP	0.1uF	25V	
C64	1-135-180-21	TANTALUM CHIP	3.3uF 20%	6.3V	
C65	1-163-101-00	CERAMIC CHIP	22PF 5%	50V	
C66	1-163-220-11	CERAMIC CHIP	3PF 0.25PF	50V	
C67	1-163-038-00	CERAMIC CHIP	0.1uF	25V	
C68	1-164-222-11	CERAMIC CHIP	0.22uF	25V	
C69	1-164-346-11	CERAMIC CHIP	1uF	16V	
C70	1-163-121-00	CERAMIC CHIP	150PF 5%	50V	
C71	1-163-101-00	CERAMIC CHIP	22PF 5%	50V	
C72	1-163-121-00	CERAMIC CHIP	150PF 5%	50V	
C73	1-163-024-00	CERAMIC CHIP	0.018uF 10%	50V	
C74	1-135-180-21	TANTALUM CHIP	3.3uF 20%	6.3V	
C75	1-164-346-11	CERAMIC CHIP	1uF	16V	
C76	1-164-346-11	CERAMIC CHIP	1uF	16V	
C77	1-126-209-11	ELECT CHIP	100uF 20%	4V	
C78	1-164-346-11	CERAMIC CHIP	1uF	16V	
C79	1-163-038-00	CERAMIC CHIP	0.1uF	25V	
		< DIODE >			
D52	8-719-946-33	DIODE HSM276S			
		< IC >			
IC51	8-759-605-59	IC CXA1280N			
		< JAMPER >			
JW51	1-216-296-00	METAL CHIP	0 5%	1/8W	
		< COIL >			
L51	1-424-333-11	COIL			
L52	1-410-386-11	INDUCTOR CHIP	27uH		
L53	1-410-390-11	INDUCTOR CHIP	56uH		
L54	1-410-657-21	INDUCTOR CHIP	180uH		
L55	1-406-436-11	COIL (OSC)			
		< TRANSISTOR >			
Q51	8-729-220-93	TRANSISTOR 2SK209-G			
Q53	8-729-900-52	TRANSISTOR DTC114YK			
Q54	8-729-906-45	TRANSISTOR DTA143XK			
Q55	8-729-230-49	TRANSISTOR 2SC2712-YG			
		< RESISTOR >			
R51	1-216-057-00	METAL CHIP	2.2K 5%	1/10W	
R52	1-216-025-00	METAL CHIP	100 5%	1/10W	
R53	1-216-025-00	METAL CHIP	100 5%	1/10W	
R54	1-216-057-00	METAL CHIP	2.2K 5%	1/10W	
R55	1-216-069-00	METAL CHIP	6.8K 5%	1/10W	
R56	1-216-029-00	METAL CHIP	150 5%	1/10W	
R57	1-216-085-00	METAL CHIP	33K 5%	1/10W	
R58	1-216-061-00	METAL CHIP	3.3K 5%	1/10W	
R59	1-216-039-00	METAL CHIP	390 5%	1/10W	
		< VARIABLE RESISTOR >			
VOL51	1-238-906-11	RES, VAR, CARBON 10K (VOL)			
**********					
*	1-641-347-11	PD BOARD			
		********			
		< PHOTO DIODE >			
PH101	8-719-975-20	PHOTO DIODE PP601-1			
PH102	8-719-975-20	PHOTO DIODE PP601-1			
**********					

RE

Ref.No.	Part No.	Description			Remark
*	A-4542-062-A	RE BOARD, COMPLETE			
		**********			
	1-578-717-71	FILTER, CRYSTAL			
		< CAPACITOR >			
C1	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C2	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C3	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C4	1-164-346-11	CERAMIC CHIP	1uF		16V
C5	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C6	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C8	1-126-607-11	ELECT CHIP	47uF	20%	4V
C9	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C10	1-163-034-00	CERAMIC CHIP	0.033uF		50V
C11	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C12	1-163-104-00	CERAMIC CHIP	30PF	5%	50V
C13	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C14	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C15	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C17	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C18	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C19	1-164-346-11	CERAMIC CHIP	1uF		16V
C20	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C21	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C22	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C23	1-163-024-00	CERAMIC CHIP	0.018uF	10%	50V
C24	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C25	1-164-346-11	CERAMIC CHIP	1uF		16V
C26	1-164-346-11	CERAMIC CHIP	1uF		16V
C27	1-126-209-11	ELECT CHIP	100uF	20%	4V
C28	1-164-346-11	CERAMIC CHIP	1uF		16V
C29	1-164-337-11	CERAMIC CHIP	2.2uF		16V
		< DIODE >			
D1	8-719-989-22	DIODE CL-150R-CD			
D2	8-719-946-33	DIODE HSM276S			
		< IC >			
IC1	8-759-605-59	IC CXA1280N			
IC2	8-759-044-56	IC BU2305F			
		< JAMPER >			
JW1	1-216-296-00	METAL CHIP	0	5%	1/8W
		< COIL >			
L1	1-424-334-11	COIL			
L2	1-410-655-31	INDUCTOR CHIP	120uH		
L3	1-410-390-11	INDUCTOR CHIP	56uH		
L4	1-410-393-11	INDUCTOR CHIP	100uH		
L5	1-406-436-11	COIL (OSC)			
		< TRANSISTOR >			
Q1	8-729-220-93	TRANSISTOR 2SK209-G			
Q2	8-729-141-48	TRANSISTOR 2SB624-BV345			
Q3	8-729-900-52	TRANSISTOR DTC114YK			
Q4	8-729-906-45	TRANSISTOR DTA143XK			
Q5	8-729-230-49	TRANSISTOR 2SC2712-YG			
		< RESISTOR >			
R1	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R2	1-216-025-00	METAL CHIP	100	5%	1/10W
R3	1-216-025-00	METAL CHIP	100	5%	1/10W
R4	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R5	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R6	1-216-029-00	METAL CHIP	150	5%	1/10W
R7	1-216-085-00	METAL CHIP	33K	5%	1/10W
R8	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R9	1-216-049-00	METAL CHIP	1K	5%	1/10W
R10	1-216-073-00	METAL CHIP	10K	5%	1/10W
R11	1-216-089-00	METAL CHIP	47K	5%	1/10W
R12	1-216-049-00	METAL CHIP	1K	5%	1/10W
R13	1-216-115-00	METAL CHIP	560K	5%	1/10W
R14	1-216-108-00	METAL CHIP	300K	5%	1/10W
		< SWITCH >			
SW1	1-572-473-11	SWITCH, TACTIL (POWER)			
		< VARIABLE RESISTOR >			
VOL1	1-238-906-11	RES, VAR, CARBON 10K (VOL)			

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